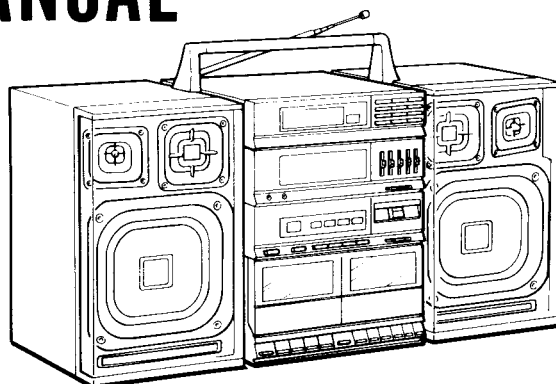


FH-209W

SERVICE MANUAL



*US Model
Canadian Model
AEP Model
UK Model*


'Dolby' and the double-D symbol are the trade marks of Dolby Laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

- FH-209W consists of ST-209, DXA-209W, and APM-209.


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SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE  SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

— Continued on page 2 —



**COMPACT HI-DENSITY
COMPONENT SYSTEM
SONY®**



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FEATURES

Tuner section

- **Preset function** stores a total of 20 stations.
- **Preset-station-scanning function** helps you search for a desired program.

Amplifier section

- **A 5-band graphic equalizer** with a spectrum analyzer for fine adjustment of tone quality for both recording and playback.
- **DOL (Dynamic Optimum Loudness)** for obtaining sufficient bass sounds.

Cassette deck

- **Relay play** for playing both decks successively.
- **Two synchro dubbing speeds** available.

MODEL IDENTIFICATION

— Specification Label —

ST-209

US, Canadian, AEP, UK model

SONY® MODEL NO. ST-209 FM STEREO/FM-AM TUNER FREQUENCY RANGE : <div style="border: 1px solid black; width: 200px; height: 15px; margin: 5px 0;"></div>
--

{ FM: 87.5–108 MHz AM: 530–1610 kHz . . . US, Canadian model
 { FM: 87.5–108 MHz MW: 522–1611 Hz
 LW: 144– 288 kHz . . . AEP, UK model

DXA-209W

SONY® MODEL NO. DXA-209W STEREO CASSETTE DECK AMPLIFIER AC : <div style="border: 1px solid black; width: 150px; height: 15px; display: inline-block;"></div>

{ 120 V ~ 60 Hz 100W US, Canadian model
 { 220 V ~ 50/60 Hz 75W AEP model
 { 240 V ~ 50 Hz 160W UK model

G-AEP model

SONY® MODEL NO. ST-209 FM STEREO/FM-AM TUNER COMPACT HI-DENSITY COMPONENT SYSTEM <small>FH-209W/FH-207/FH-204</small>
--

- This label is sticked on DXA-209W (For G-AEP model).

SONY® MODEL NO. FH-209W COMPACT HI-DENSITY COMPONENT SYSTEM ST-209 : FM STEREO/FM-AM TUNER DXA-209W : STEREO CASSETTE DECK AMPLIFIER APM-209 : SPEAKER SYSTEM AC : 220V–50/60Hz 75W

APM-209

SONY® MODEL NO. APM-209 SPEAKER SYSTEM POWER HANDLING CAPACITY : <div style="border: 1px solid black; width: 100px; height: 15px; display: inline-block; margin-left: 100px;"></div>
--

{ 35 W (NOM), 70 W (MAX) US, Canadian model
 { MUSIC 70 W (DIN) AEP, UK model

SPECIFICATIONS

ST-209 tuner

System FM stereo, FM/AM superheterodyne tuner
Quartz-locked PLL digital synthesizer system

FM tuner section

Tuning range 87.5 – 108 MHz
Antenna Telescopic antenna
Antenna terminals 75 Ohms unbalanced
Intermediate frequency 10.7 MHz
Usable sensitivity 2.3 μ V (S/N = 30 dB/75 ohms)
Signal-to-noise ratio 78 dB (mono), 70 dB (stereo)
Harmonic distortion at 1 kHz 0.2% (mono), 0.5% (stereo)
Separation at 1 kHz 40 dB
Selectivity at 400 kHz 55 dB

MW/LW tuner section (for AEP/UK model)

	MW	LW
Tuning range	522 – 1,611 kHz	144 – 288 kHz
Antenna	Built-in ferrite bar antenna External antenna terminal	
Intermediate frequency	450 kHz	
Usable sensitivity	Built-in ferrite bar antenna	250 μ V/m (999 kHz)
	External antenna	100 μ V (999 kHz)
Usable sensitivity	Built-in ferrite bar antenna	500 μ V/m (230 kHz)
	External antenna	150 μ V (230 kHz)
Signal-to-noise ratio	52 dB (50 mV/m)	
Harmonic distortion	0.3% (50 mV/m, 400 Hz)	

AM tuner section (for US/Canadian model)

		AM
Tuning range		530 – 1,610 kHz (at 10 kHz step)
Antenna		Built-in ferrite bar antenna External antenna terminal
Intermediate frequency		450 kHz
Usable sensitivity	Built-in ferrite bar antenna	250 μ V/m (1,000 kHz)
	External antenna	100 μ V (1,000 kHz)
Signal-to-noise ratio		52 dB (50 mV/m)
Harmonic distortion		0.3% (50 mV/m, 400 Hz)

General

Dimensions Approx. 215 × 55 × 240 mm (w/h/d)
(8 1/2 × 2 1/4 × 9 1/2 inches)
incl. projecting parts and controls.
Weight Approx. 0.9 kg (2 lb) net

DXA-209W cassette deck amplifier

Cassette deck section

Recording system 4-track 2-channel stereo
Frequency response DOLBY NR OFF (DIN)
TYPE II cassette (Sony UCX)
60 – 14,000 Hz (\pm 3 dB)
TYPE I cassette (Sony HF-S)
60 – 13,000 Hz (\pm 3 dB)
Wow and flutter 0.1% WRMS
 \pm 0.3% (DIN)

Amplifier

Continuous RMS power output
35 W +35 W (6 ohms, at 1 kHz, 5% THD)
25 W +25 W (6 ohms, 40 Hz – 20 kHz, 1% THD)
Music power output 120 W (6 ohms)
DC operation with the optional EBP-87
1 W +1 W (6 ohms, at 1 kHz, 5% THD)

Inputs

	Sensitivity	Impedance
PHONO (phono jacks)	2.5 mV	50 kilohms
CD/AUX (phono jacks)	450 mV	50 kilohms
MIC (minijack)	1 mV	600 ohms

Outputs

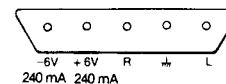
PHONES (stereo minijack)	Accepts headphones of 8 ohms or more
SPEAKER	Accepts speakers of 6 to 16 ohms

Frequency response

PHONO: RIAA curve \pm 0.5 dB
CD/AUX: 40 Hz – 30 kHz \pm 0.5 dB
MIC: 100 Hz – 10 kHz \pm 0.5 dB

Dimensions Approx. 215 × 235 × 250 mm (w/h/d)
(8 1/2 × 9 3/8 × 9 7/8 inches)
incl. projecting parts and controls

Weight Approx. 5.0 kg (11 lb 1 oz) net
5-pin DC output connector of DXA-209 to ST-209



APM-209 speaker (for US/Canadian/AEP model)

Speaker system 3 way speaker system
Speaker units Woofer: 134 cm² APM type
Tweeter: 5 cm dia. cone type
Super tweeter: 3.5 cm dia. ceramic type
Enclosure type Bass reflex
Frequency range 60 Hz – 20 kHz
Sensitivity 88 dB/W/m
Impedance 6 ohms
Dimensions Approx. 175 × 290 × 220 mm
(7 × 11 1/2 × 8 3/4 inches)
Weight Approx. 3.2 kg (7 lb 1 oz)

General

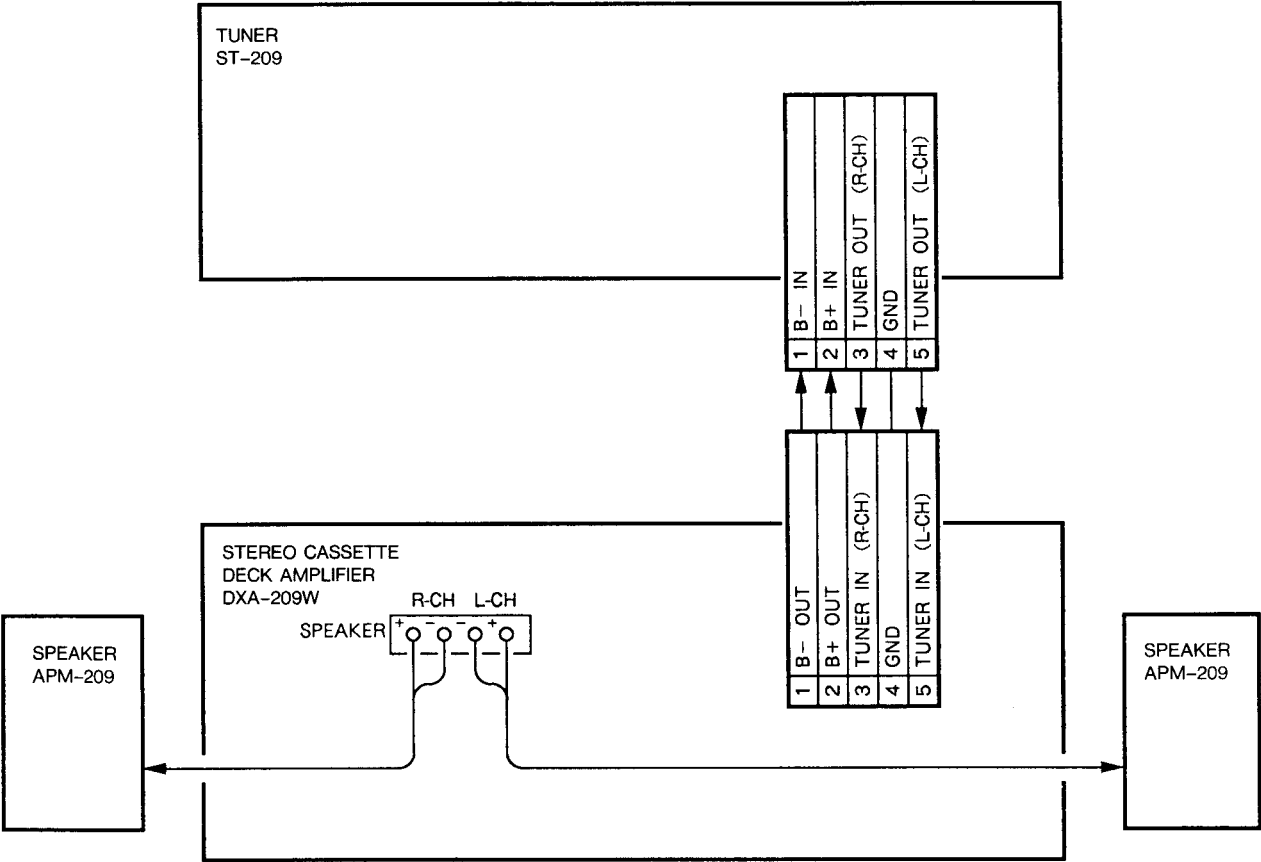
Power requirements US, Canadian model: 120 V AC, 60 Hz
UK model: 240 V AC, 50 Hz
AEP model: 220 V AC, 50/60 Hz
Power consumption US, Canadian model: 100 watts
UK model: 160 watts
AEP model: 75 watts
Dimensions Approx. 585 × 355 × 250 mm (w/h/d)
(23 1/8 × 14 × 9 7/8 inches)
incl. projecting parts and controls
Weight US/Canadian/AEP model:

net	in shipping carton
Approx. 13.0 kg (28 lb 11 oz)	Approx. 14.8 kg (32 lb 11 oz)

UK model:

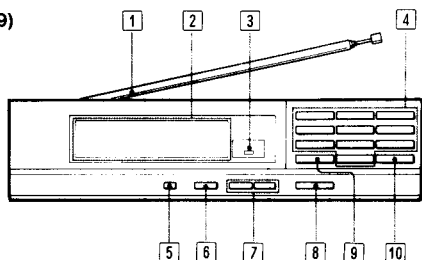
net	in shipping carton
Approx. 6.6 kg (14 lb 9 oz)	Approx. 8.6 kg (19 lb 0 oz)

CONNECTOR'S SIGNAL ASSIGNMENT

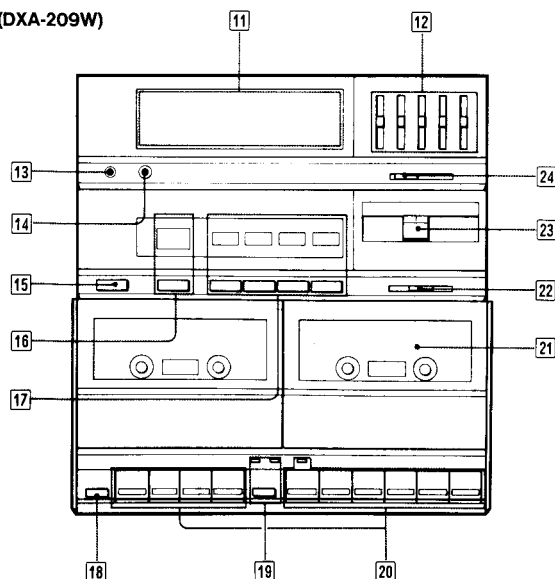


FUNCTION OF CONTROLS

(ST-209)

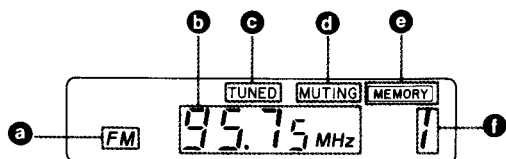


(DXA-209W)



TUNER

- 1 Telescopic antenna
- 2 Display window



- a BAND indicator
- b FREQUENCY indicator
- c TUNED indicator
Appears when a signal is tuned in.
- d MUTING indicator
Appears when the STEREO/MUTING switch is pressed.
- e MEMORY indicator
Appears when the MEMORY button is pressed.
- f PRESET (preset channel) indicator
- 3 STEREO indicator
- 4 PRESET (10-Key station preset) selectors
Used for quick tuning of frequently used radio stations.
- 5 STEREO/MUTING switch
Normally keep this switch engaged to eliminate FM interstation noise while tuning from station to station. (The MUTING indication appears.)
Press to disengage when listening to the noisy FM stereo program. There is no stereo effect, but the reception will be improved.

- 6 BAND selector
Each time it is pressed, the band changes in the following sequence.
AEP/UK model: FM → MW → LW
Canadian model: FM → AM
- 7 TUNING + and - buttons
Use to change radio stations.
- 8 MEMORY SCAN button
Press to scan the preset stations.
- 9 MEMORY button
- 10 ENTER button
Completes preset station selections.

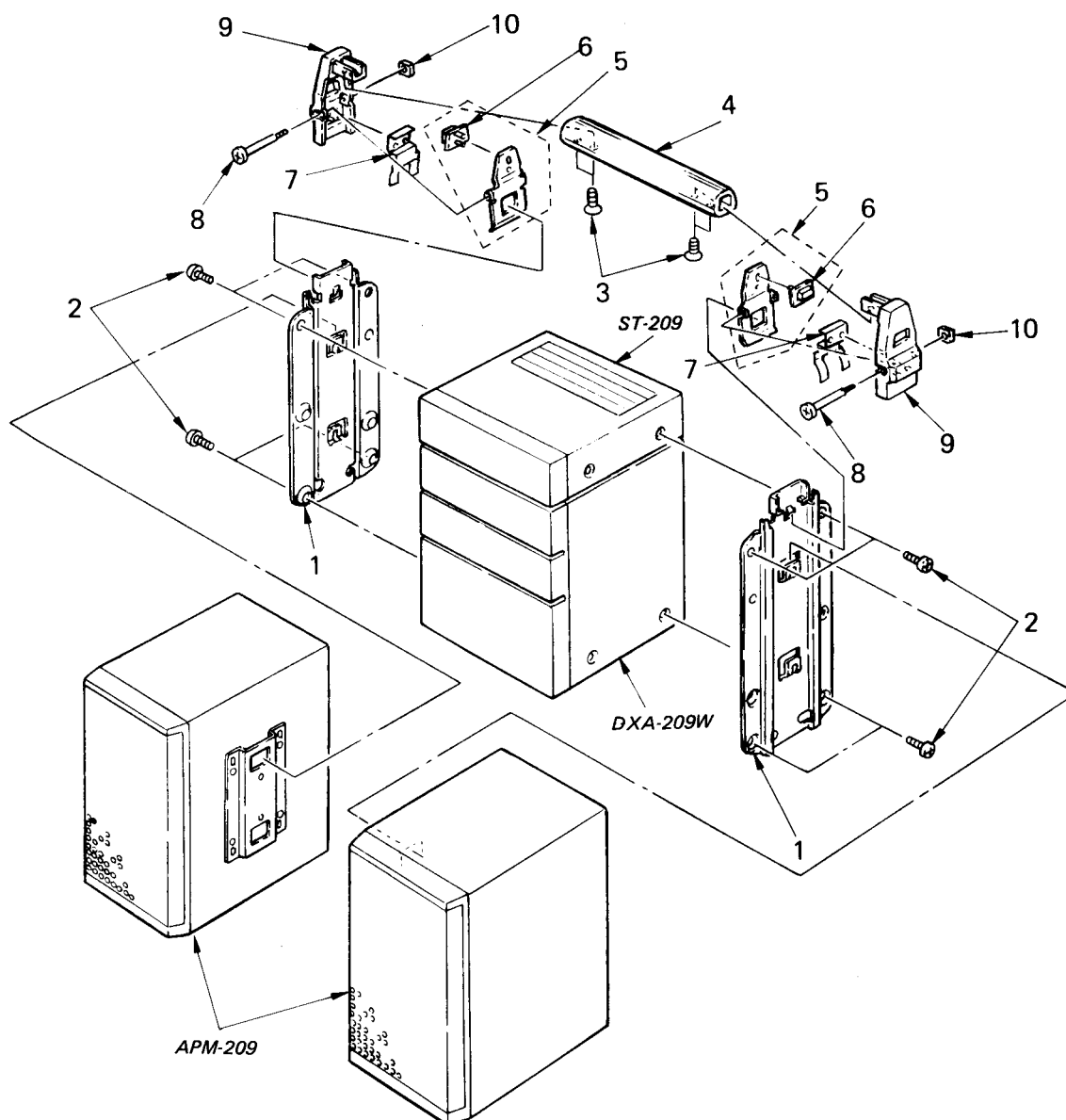
CASSETTE DECK AMPLIFIER

- 11 SPECTRUM ANALYZER display
Visually display output by frequency band. Use to help make equalizer adjustments.
- 12 GRAPHIC EQUALIZER controls
Allows sophisticated tone control.
- 13 PHONES (headphones) jack (stereo minijack)
- 14 MIC (microphone) jack (minijack)
- 15 POWER switch
- 16 DOL (Dynamic Optimum Loudness) button and indicator
Reinforces bass sound in listening. To disengage the button, press it again.
- 17 FUNCTION select buttons and indicators
TAPE: Press to listen to tapes.
CD: Press to listen to or to record from compact discs or auxiliary sources.
TUNER: Press to listen to or record radio programs.
PHONO: Press to listen to or to record from phonograph records.
- 18 DOLBY NR* switch
- 19 DUBBING SPEED select button and indicators
- 20 Tape operation buttons
 - ▶ PLAY (playback)
 - ◀ REW (rewind)
 - ▶▶ FF (fast forward)
 - STOP/EJECT
 - REC (record)
 - || PAUSE
- 21 Cassette holder
- 22 BALANCE control
Changes relative strength of right and left speaker output. Use to correct stereo imaging, especially when the speaker position is not symmetrical.
- 23 VOLUME control
- 24 MIC LEVEL (microphone level) control

* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.

"DOLBY" and the double-D symbol  are trade marks of Dolby Laboratories Licensing Corporation.

EXPLODED VIEW AND PARTS LIST



No.	Part No.	Description	Remarks
1	4-920-120-01	PLATE (A), SIDE	
2	X-4910-086-1	SCREW ASSY, SIDE PLATE	
3	7-685-247-19	SCREW +KTP 3X10 TYPE2 SLIT	
4	2-249-402-21	HANDLE	
5	X-4919-631-1	PLATE ASSY, SEESAW	6
6	4-884-803-12	PUSH BUTTON	
7	4-902-942-03	SPRING, LEAF	
8	4-884-805-21	SHAFT	
9	4-910-361-11	HOLDER, HANDLE	
10	4-884-801-11	NUT, PLATE	

ACCESSORY & PACKING MATERIAL

3-701-613-00	BAG, POLYETHYLENE
3-701-630-00	BAG, POLYETHYLENE
3-703-390-01	(US).....INSTRUCTION
3-769-005-11	(AEP,UK,Canadian)...MANUAL, INSTRUCTION
3-769-005-41	(AEP,G-AEP).....MANUAL, INSTRUCTION
3-769-005-21	(US).....MANUAL, INSTRUCTION
4-919-619-01	(UK)...INDIVIDUAL CARTON
4-919-620-01	(AEP,G-AEP,Canadian,US)...INDIVIDUAL CARTON
9-911-842-XX	CUSHION (F)

DXA-209W PACKING MATERIAL

4-919-627-01	CUSHION, LOWER
4-919-628-01	CUSHION, LOWER
4-920-151-01	SHEET, PROTECTION

ST-209 PACKING MATERIAL

4-884-884-00	SHEET, PROTECTION
--------------	-------------------

APM-209 PACKING MATERIAL

4-920-121-01	CUSHION
4-920-151-01	SHEET, PROTECTION

FH-209W
FH-204

FM STEREO/FM-AM TUNER 〔ST-209〕

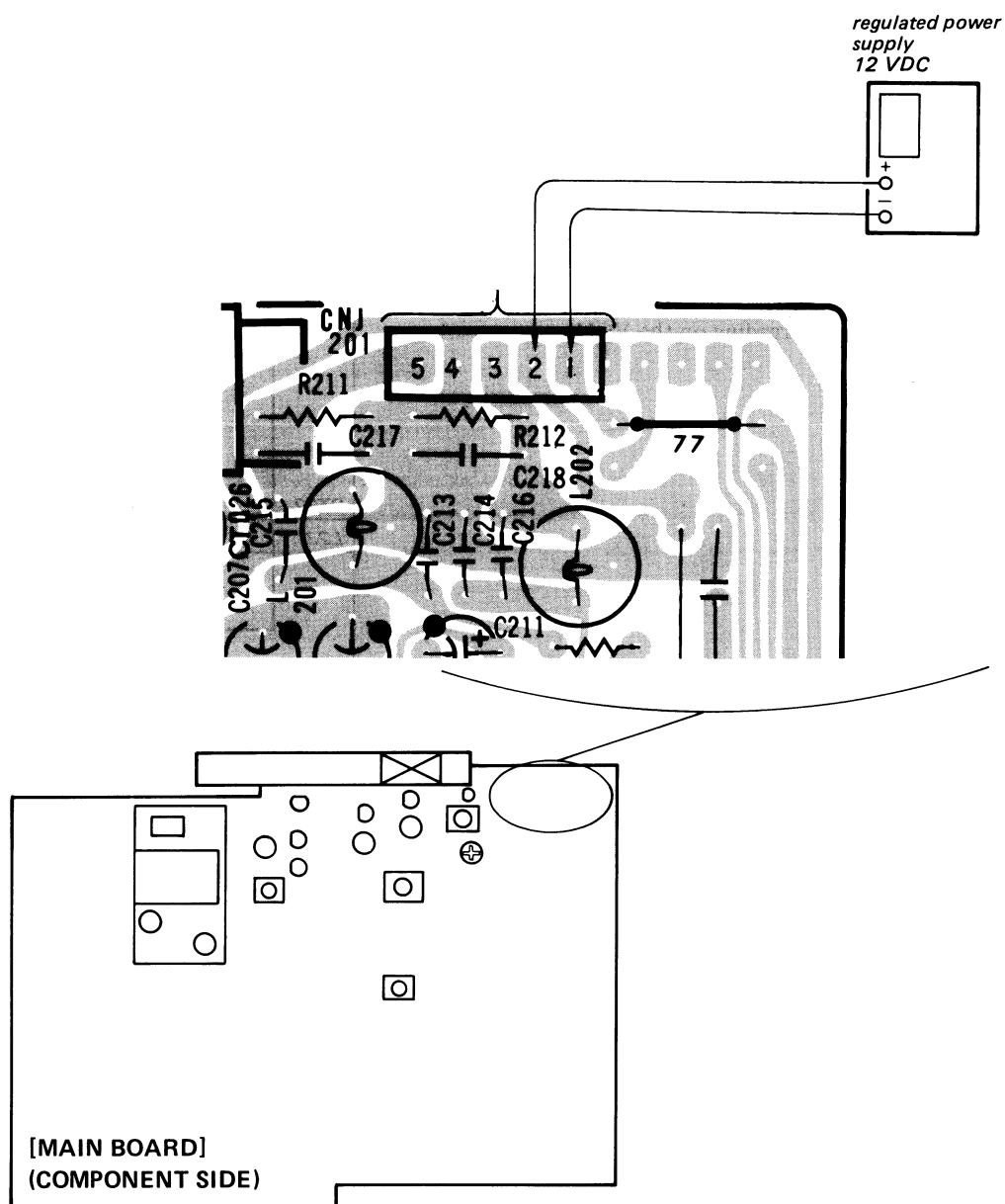
US Model
Canadian Model

REPAIRING PRECAUTION

[To apply B+ voltage]

The power of this unit is fed from other unit.

When the unit operates individually, connect the regulated power supply to the point as shown in the below fig.



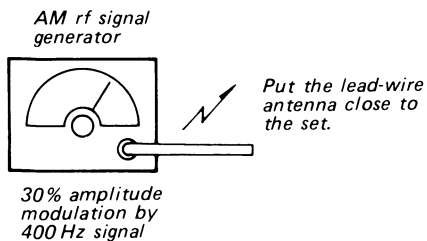
SECTION 1

ELECTRICAL ADJUSTMENTS

AM SECTION

Setting:

BAND selector switch: AM

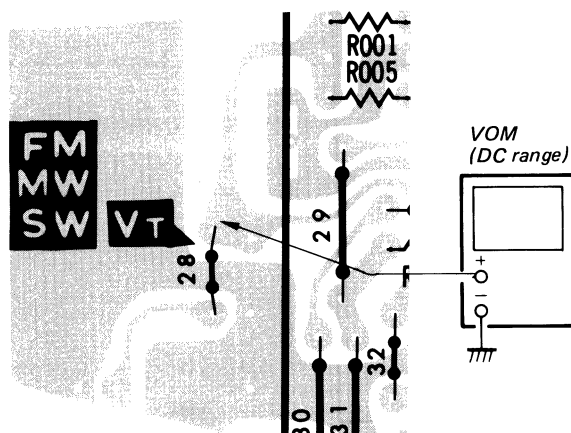


- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

AM OSC Voltage Adjustment

Procedure:

1. Set BAND selector switch to AM.
2. Push TUNING (+, -) button for 530 kHz. Adjust L23 for 1 – 1.1 V reading on the VOM.
3. Push the button for 1,611 kHz. Adjust CT22 for 8.0 – 8.5 V reading on the VOM.

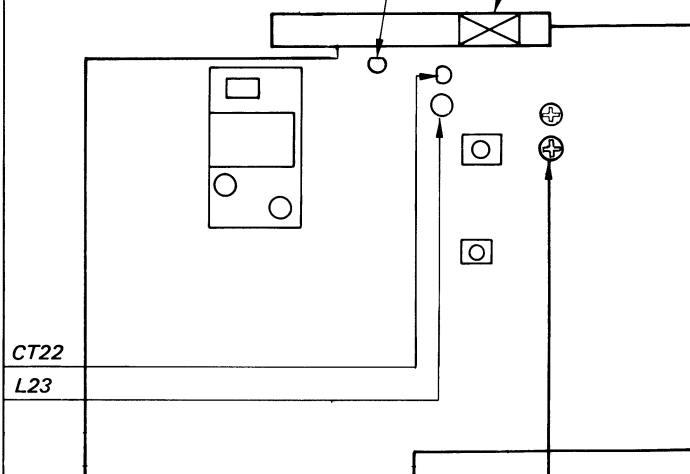


AM TRACKING ADJUSTMENT

Adjust for a maximum reading on VTVM.

1,404 kHz	603 kHz
-----------	---------

CT21	L22
------	-----



AM Tuned Indication Lighting Level Adjustment

BAND select switch: AM

1. Output 0.7 mV (57 dB), 1,000 kHz from AM rf signal generator.
2. Adjust RT102 so that the LED lights up.

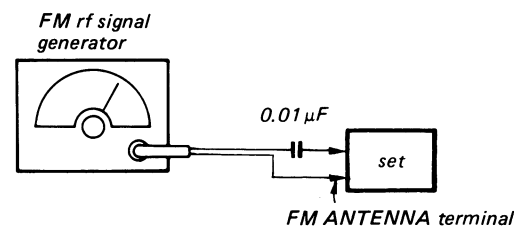
FM SECTION

Setting:

BAND selector switch FM

FM OSC Voltage Adjustment

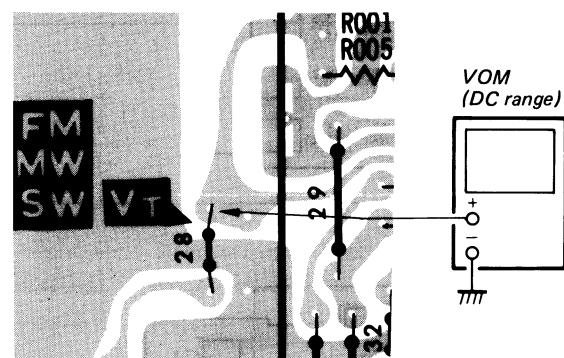
Setting:



Carrier frequency: 108 MHz
Modulation: 1 kHz, 75 kHz deviation
Output level: as low as possible

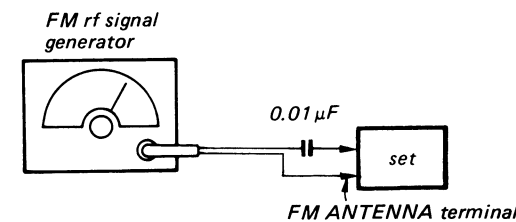
Procedure:

1. Push the TUNING (+, -) button for 108 MHz.
2. Adjust L5 for 8.0 – 8.5 V reading on the VOM.



FM Tracking Adjustment

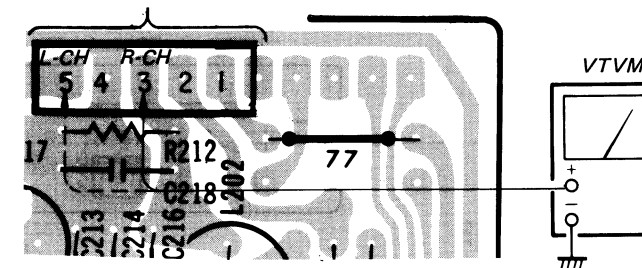
Setting:



Carrier frequency: 98 MHz
Modulation: 1 kHz, 75 kHz deviation
Output level: 3.16 μV (10 dB)

Procedure:

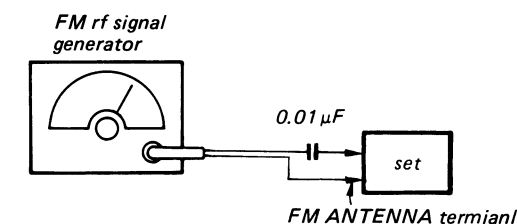
1. Push TUNING (+, -) button for 98 MHz.
2. Approach L2 and L3 not to contact each other.
3. Adjust L1 and L3, and repeat the adjustment 2 – 3 times for maximum VTVM reading.



Note: FM discriminator alignment should be made after FM tracking adjustment.

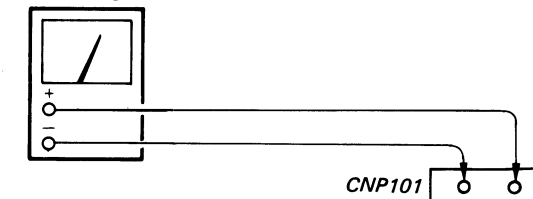
FM Discriminator Alignment (NULL Check)

Setting:



Carrier frequency: 98 MHz
Modulation: 1 kHz, 75 kHz deviation
Output level: 1 mV (60 dB)

VOM (DC range)



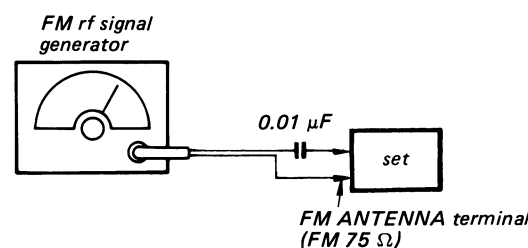
Procedure:

1. Push the TUNING (+, -) button for 98 MHz.
2. Adjust IFT101 for 0 V reading on the VOM.

FM Muting Level Adjustment

Setting:

STEREO MUTING switch ON



Carrier frequency: 98 MHz
Modulation: 1 kHz, 75 kHz deviation
Output level: 22.4 μV (27 dB)

Procedure:

1. Check that "MUTING" is flashed on the indicator.
2. Push the TUNING (+, -) button for 98 MHz.
3. Adjust RT101, then check that "TUNED" is flashed on the indicator.

SECTION 2
DIAGRAMS

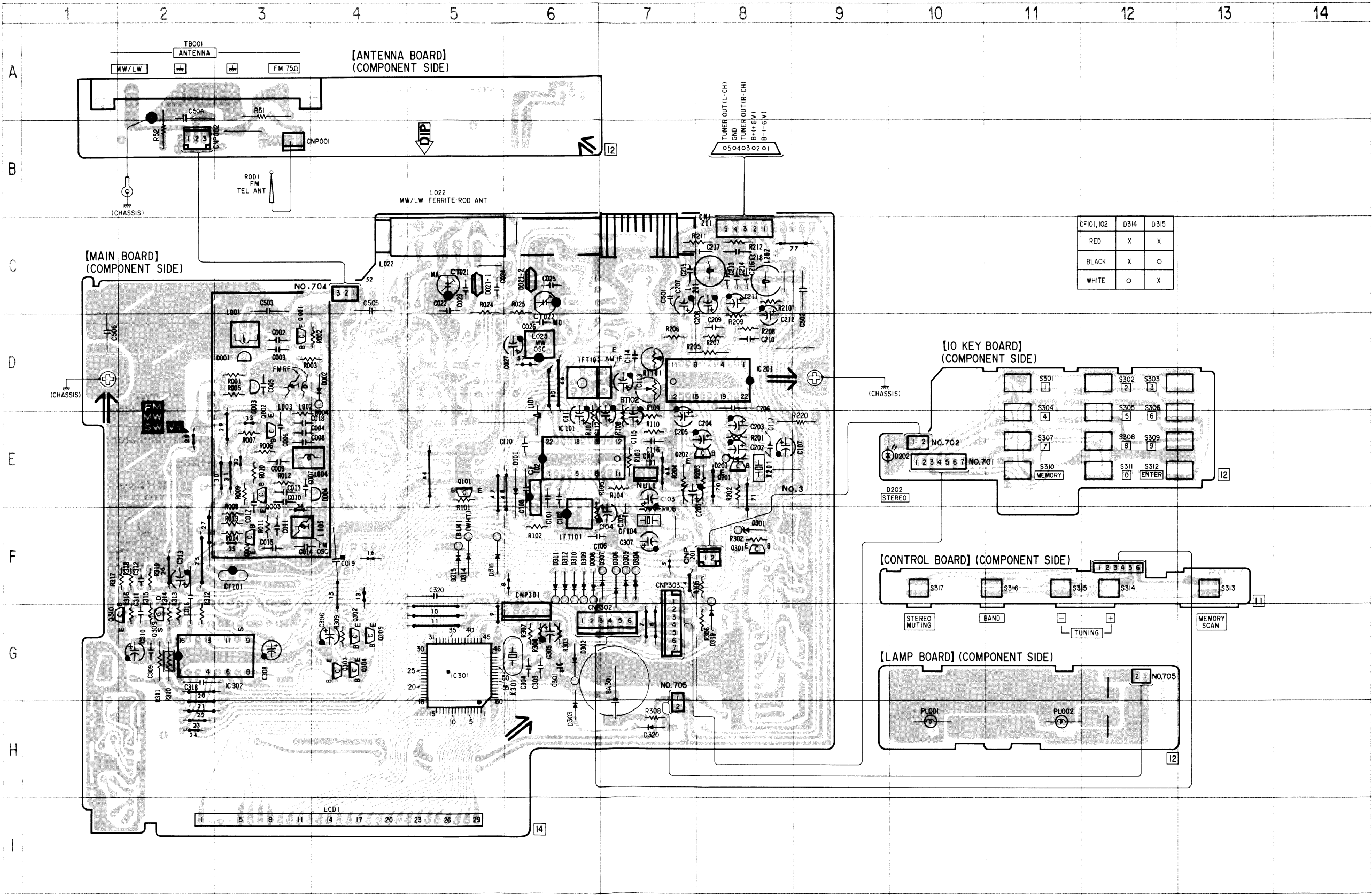
2-1. MOUNTING DIAGRAM

• See page ST-9 for Semiconductor Lead Layouts.

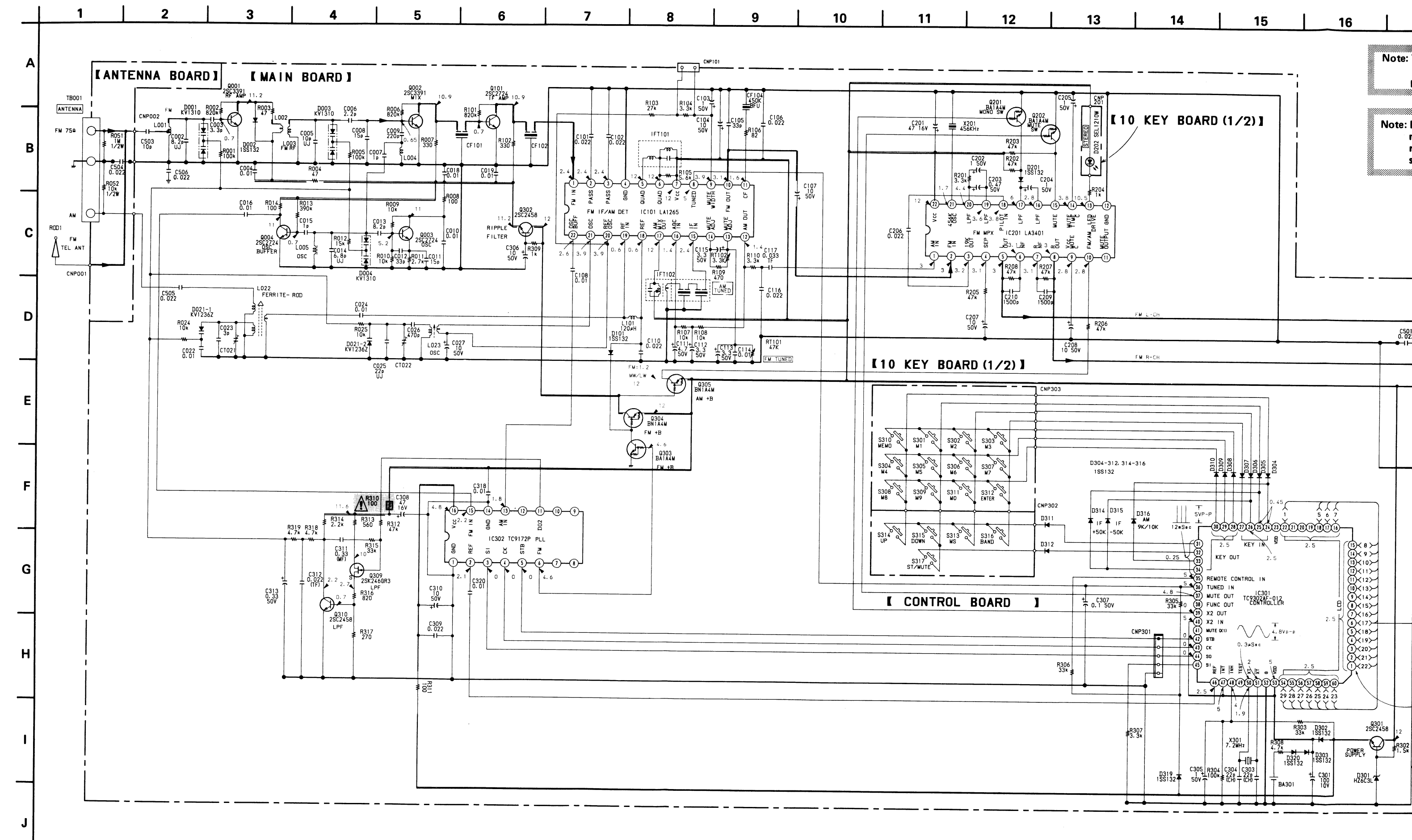
• SEMICONDUCTOR
LOCATION

Ref. No.	Location
D001	D-3
D002	D-4
D003	D-3
D004	E-4
D021-1	C-5
D021-2	C-6
D101	E-6
D201	E-8
D202	E-9
D301	F-8
D302	G-6
D303	H-6
D304	F-7
D305	F-7
D306	F-7
D307	F-7
D308	F-6
D309	F-6
D310	F-6
D311	F-6
D312	F-6
D314	F-5
D315	F-5
D316	F-5
D319	G-8
D320	H-7
IC101	E-6
IC201	D-8
IC301	G-5
IC302	G-2
Q001	D-3
Q002	E-3
Q003	E-3
Q004	F-3
Q101	E-5
Q201	E-8
Q202	E-8
Q301	F-8
Q302	G-4
Q303	G-4
Q304	G-4
Q305	G-4
Q309	G-2
Q310	G-2

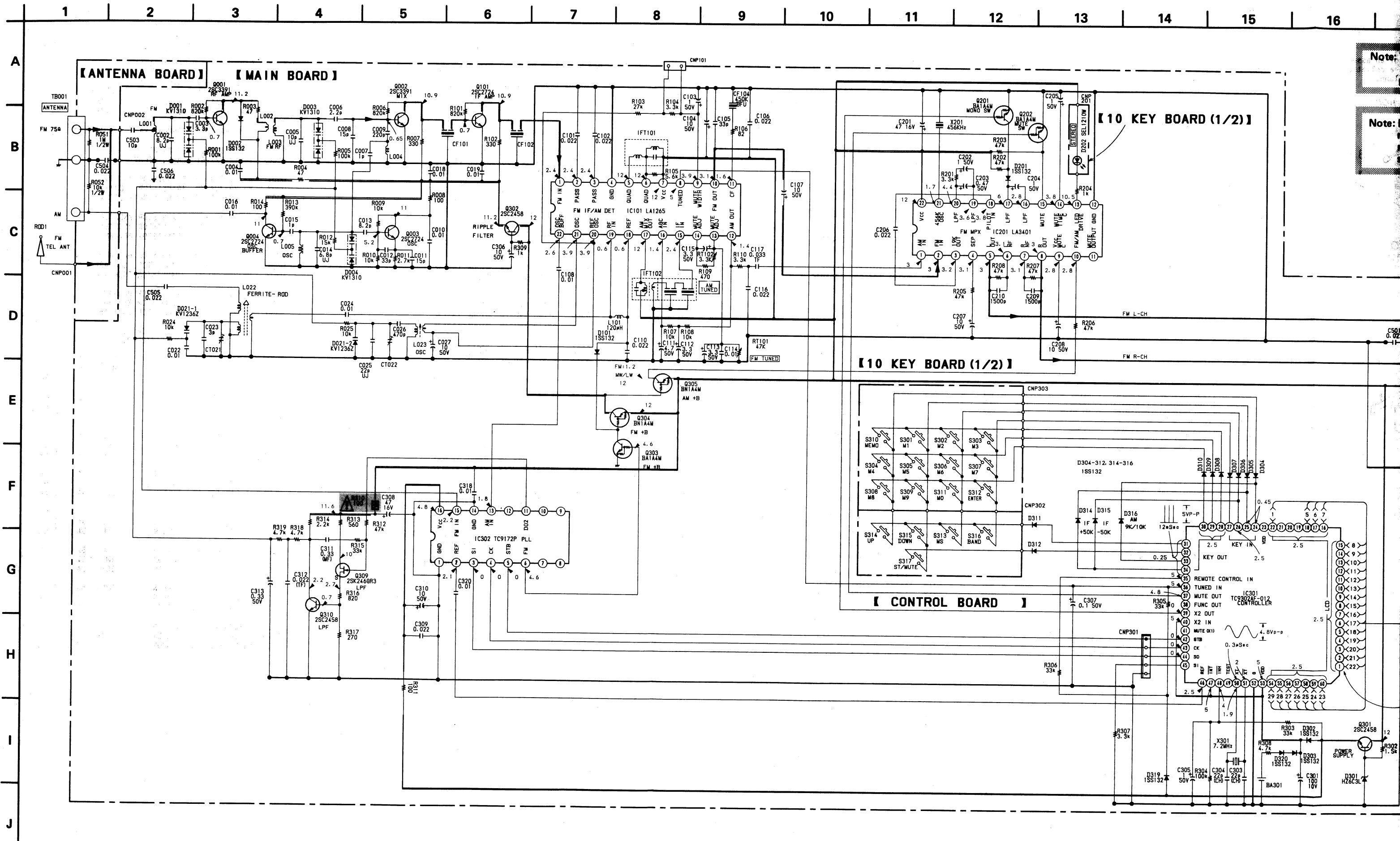
Note:
• ■ : part mounted on
the conductor side.



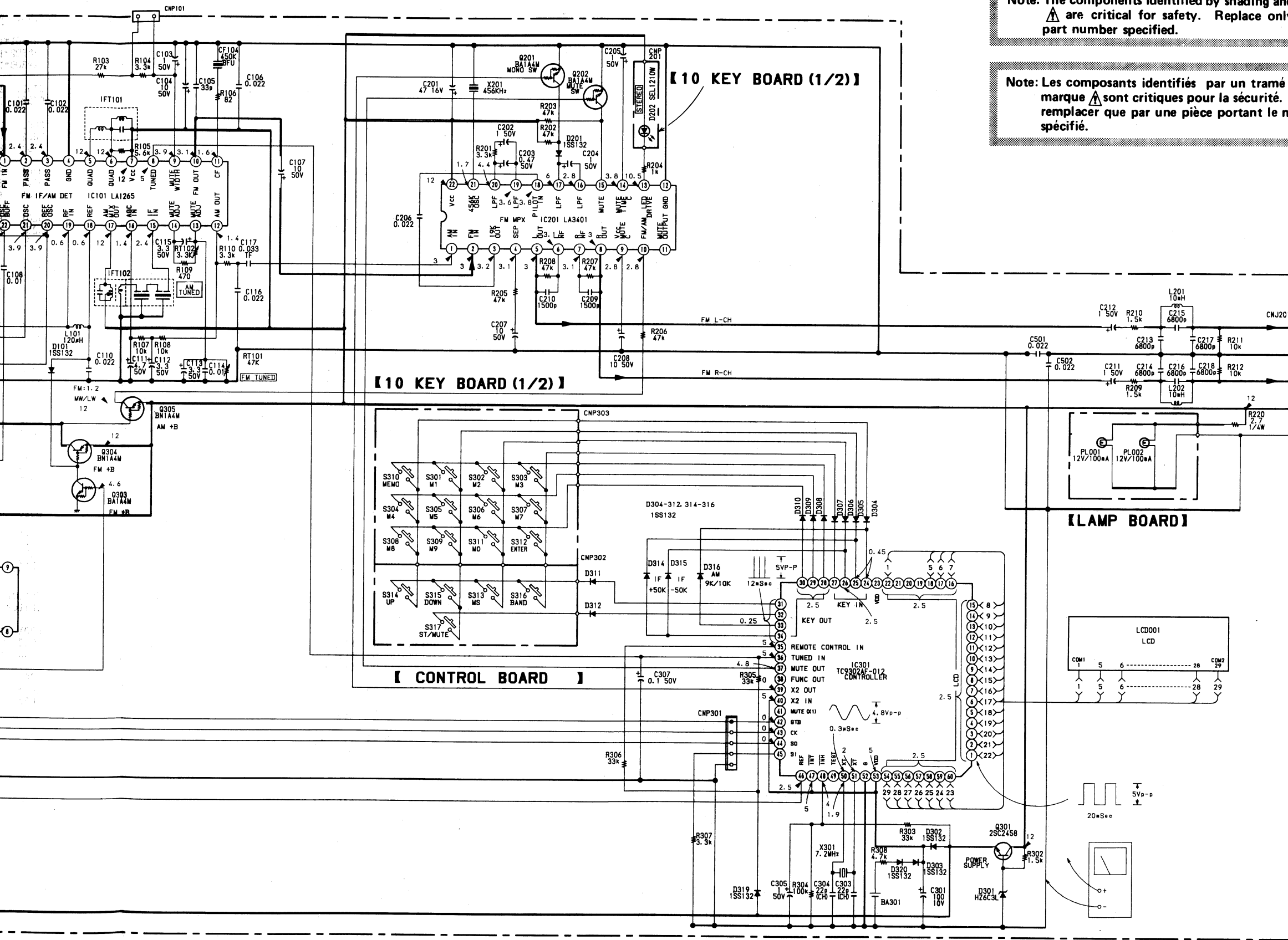
2-2. SCHEMATIC DIAGRAM



2.2. SCHEMATIC DIAGRAM



7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23



Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un trame et une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- Note:**
- All capacitors are in μF unless otherwise noted. pF : μF 50WV or less are not indicated except for electrolytics and tantalums.
 - All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
 - : signal path.
 - : B+ bus.
 - : B- bus.
 - : adjustment for repair.
 - Voltages are dc with respect to ground unless otherwise noted.
 - Readings are taken under no-signal (detuned) conditions with a VOM (50 $\text{k}\Omega/\text{V}$).
no mark: FM mode

• Switch

Ref. No.	Switch	Position
S301	1	
S302	2	
S303	3	
S304	4	
S305	5	
S306	6	
S307	7	
S308	8	
S309	9	
S310	MEMORY	
S311	0	
S312	ENTER	
S313	MEMORY SCAN	
S314	+	
S315	-	
S316	BAND	
S317	STEREO MUTING	

• Semiconductor Lead Layouts

LA1265 LA3401

(Top view)

HZ6C2L

cathode
anode

TC9172P

(Top view)

KV1236Z

cathode 2
anode 2
cathode 1
anode 1

TC9302AF-018

KV1310

cathode 2
anode 2
cathode 1
anode 1

1SS132

cathode
anode

2SA1348 2SC634SP 2SC2724 2SC7402 BA1A4M

E C B

2SK246GR2

S G D

2SC3391

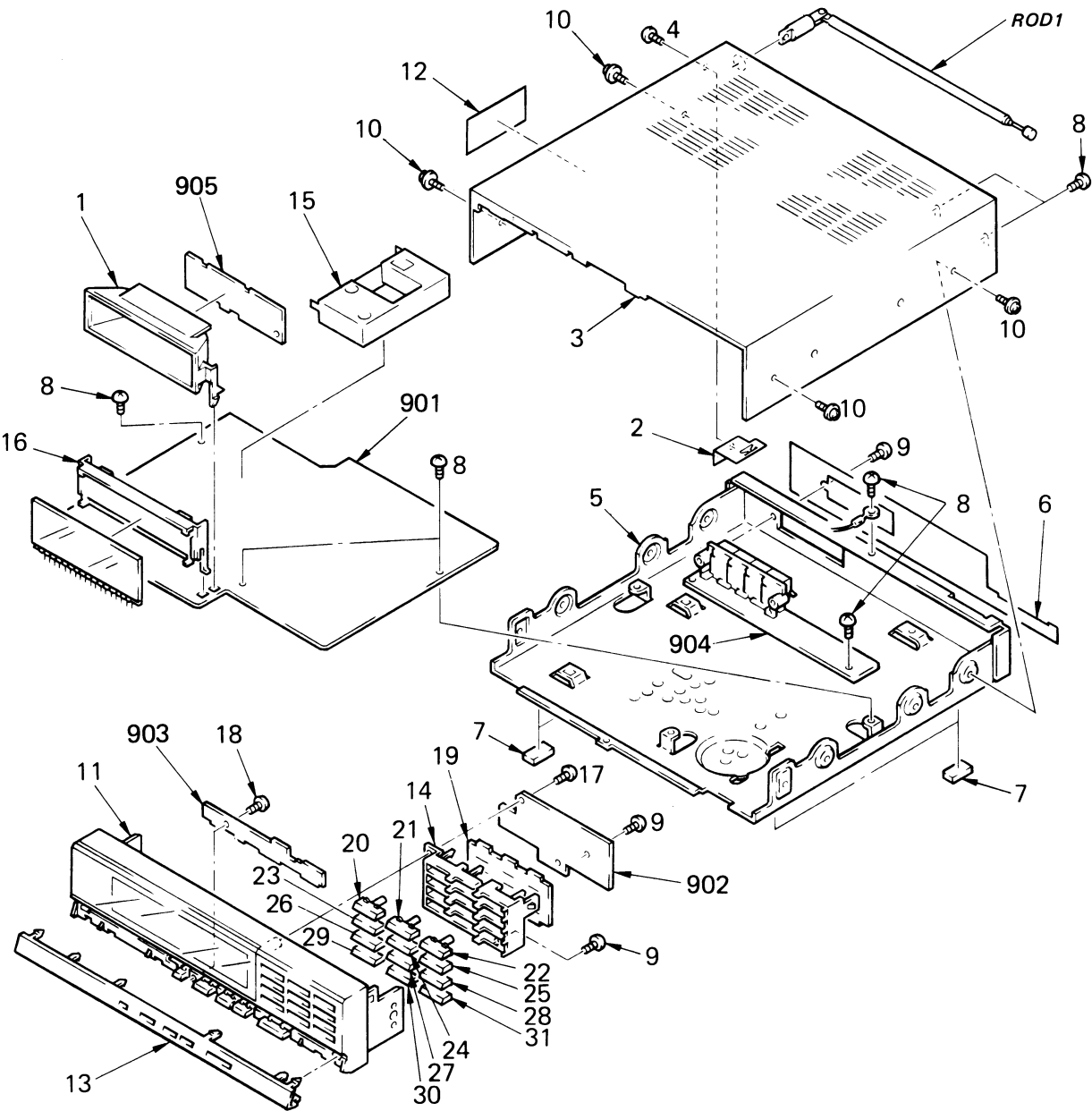
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SECTION 3
EXPLODED VIEW AND PARTS LIST

NOTE:
The mechanical parts with no reference number in the exploded views are not supplied.

Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The construction parts of an assembled part are indicated with a collation number in the remark column.



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	*4-917-275-01	HOUSE, LAMP		20	4-920-176-01	BUTTON (1)	
2	*4-919-611-01	BRACKET, ANT		21	4-920-176-11	BUTTON (2)	
3	4-920-137-01	CASE		22	4-920-176-21	BUTTON (3)	
4	7-682-147-09	SCREW +B 3X6		23	4-920-176-31	BUTTON (4)	
5	*4-919-617-01	CHASSIS		24	4-920-176-41	BUTTON (5)	
6	*4-919-613-01	COVER, REAR		25	4-920-176-51	BUTTON (6)	
7	4-919-608-01	FOOT		26	4-920-176-61	BUTTON (7)	
8	7-682-147-01	SCREW +BVTT 3X6 (S)		27	4-920-176-71	BUTTON (8)	
9	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S		28	4-920-176-81	BUTTON (9)	
10	4-886-821-21	SCREW, M3 CASE STOPPER		29	4-920-175-01	BUTTON (MEMORY)	
11	.X-4919-627-1	PANEL ASSY		30	4-920-176-91	BUTTON (0)	
12	*4-919-669-01	LABEL, MODEL NUMBER (CA)		31	4-920-175-11	BUTTON (ENTER)	
13	4-919-616-02	PANEL, CONTROL		901	*A-4351-588-A	MOUNTED PCB, TUNER	
14	*4-919-614-01	RETAINER, BUTTON		902	*1-622-167-12	PC BOARD, 10 KEY	
15	*4-874-704-01	CASE, SHIELD		903	*1-622-168-11	PC BOARD, CONTROL	
16	*4-909-633-01	ILLUMINATOR		904	*1-622-169-12	PC BOARD, ANTENNA	
17	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S		905	*1-622-170-12	PC BOARD, LAMP	
18	7-685-133-19	SCREW +P 2.6X6 TYPE2 SLIT		ROD1	1-501-270-00	ANTENNA, TELESCOPIC	
19	*4-919-607-01	SPACER					

SECTION 4
ELECTRICAL PARTS LIST

NOTE:
Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.


If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.


CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
All resistors are in ohms.
F : nonflammable

COILS
MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS					ELECTRICAL PARTS				
Ref.No.	Part No.	Description			Ref.No.	Part No.	Description		
901	*A-4351-588-A	MOUNTED PCB, TUNER			C202	1-124-791-11	ELECT	1MF	20% 50V
902	*1-622-167-12	PC BOARD, 10 KEY			C203	1-124-902-00	ELECT	0.47MF	20% 50V
903	*1-622-168-11	PC BOARD, CONTROL			C204	1-124-791-11	ELECT	1MF	20% 50V
904	*1-622-169-12	PC BOARD, ANTENNA			C205	1-124-791-11	ELECT	1MF	20% 50V
905	*1-622-170-12	PC BOARD, LAMP			C206	1-161-494-00	CERAMIC	0.022MF	30% 25V
BA301	1-528-120-00	BATTERY, LITHIUM (CR-2025)			C207	1-123-875-91	ELECT	10MF	20% 50V
C002	1-162-198-31	CERAMIC	8.2PF	10% 50V	C208	1-123-875-91	ELECT	10MF	20% 50V
C003	1-162-193-31	CERAMIC	3.3PF	10% 50V	C209	1-102-119-00	CERAMIC	0.0015MF	10% 50V
C004	1-161-379-00	CERAMIC	0.01MF	20% 16V	C210	1-102-119-00	CERAMIC	0.0015MF	10% 50V
C005	1-162-199-31	CERAMIC	10PF	5% 50V	C211	1-124-611-00	ELECT	1MF	20% 50V
C006	1-162-191-31	CERAMIC	2.2PF	10% 50V	C212	1-124-611-00	ELECT	1MF	20% 50V
C007	1-162-187-31	CERAMIC	1PF	20% 50V	C213	1-161-329-00	CERAMIC	0.0068MF	20% 16V
C008	1-162-203-31	CERAMIC	15PF	5% 50V	C214	1-161-329-00	CERAMIC	0.0068MF	20% 16V
C009	1-162-286-31	CERAMIC	220PF	10% 50V	C215	1-161-329-00	CERAMIC	0.0068MF	20% 16V
C010	1-161-379-00	CERAMIC	0.01MF	20% 16V	C216	1-161-329-00	CERAMIC	0.0068MF	20% 16V
C011	1-162-203-31	CERAMIC	15PF	5% 50V	C217	1-161-329-00	CERAMIC	0.0068MF	20% 16V
C012	1-162-211-31	CERAMIC	33PF	5% 50V	C218	1-161-329-00	CERAMIC	0.0068MF	20% 16V
C013	1-162-198-31	CERAMIC	8.2PF	10% 50V	C301	1-124-443-00	ELECT	100MF	20% 10V
C014	1-162-197-31	CERAMIC	6.8PF	10% 50V	C303	1-102-959-00	CERAMIC	22PF	5% 50V
C015	1-162-187-31	CERAMIC	1PF	20% 50V	C304	1-102-959-00	CERAMIC	22PF	5% 50V
C016	1-161-379-00	CERAMIC	0.01MF	20% 16V	C305	1-124-791-11	ELECT	1MF	20% 50V
C018	1-161-379-00	CERAMIC	0.01MF	20% 16V	C306	1-123-875-91	ELECT	10MF	20% 50V
C022	1-161-379-00	CERAMIC	0.01MF	20% 16V	C307	1-124-463-00	ELECT	0.1MF	20% 50V
C023	1-102-936-00	CERAMIC	3PF	0.25PF 50V	C308	1-124-477-11	ELECT	47MF	20% 16V
C024	1-161-379-00	CERAMIC	0.01MF	20% 16V	C309	1-101-005-00	CERAMIC	0.022MF	50V
C025	1-102-959-00	CERAMIC	22PF	5% 50V	C310	1-123-875-91	ELECT	10MF	20% 50V
C026	1-130-014-00	FILM	470PF	5% 50V	C311	1-136-171-00	FILM	0.33MF	5% 50V
C027	1-123-875-91	ELECT	10MF	20% 50V	C312	1-130-487-00	MYLAR	0.022MF	5% 50V
C101	1-101-005-00	CERAMIC	0.022MF	50V	C313	1-124-252-00	ELECT	0.33MF	20% 50V
C102	1-101-005-00	CERAMIC	0.022MF	50V	C318	1-161-379-00	CERAMIC	0.01MF	20% 16V
C103	1-124-791-11	ELECT	1MF	20% 50V	C320	1-161-379-00	CERAMIC	0.01MF	20% 16V
C104	1-123-875-91	ELECT	10MF	20% 50V	C501	1-161-494-00	CERAMIC	0.022MF	30% 25V
C105	1-162-211-31	CERAMIC	33PF	5% 50V	C502	1-161-494-00	CERAMIC	0.022MF	30% 25V
C106	1-101-005-00	CERAMIC	0.022MF	50V	C503	1-162-199-31	CERAMIC	10PF	5% 50V
C107	1-123-875-91	ELECT	10MF	20% 50V	C504	1-161-494-00	CERAMIC	0.022MF	30% 25V
C108	1-161-379-00	CERAMIC	0.01MF	20% 16V	C505	1-161-494-00	CERAMIC	0.022MF	30% 25V
C110	1-101-005-00	CERAMIC	0.022MF	50V	C506	1-161-494-00	CERAMIC	0.022MF	30% 25V
C111	1-124-927-11	ELECT	4.7MF	20% 50V	CF101	1-527-968-00	FILTER, CERAMIC		
C112	1-123-382-00	ELECT	3.3MF	20% 50V	CF102	1-527-968-00	FILTER, CERAMIC		
C113	1-123-382-00	ELECT	3.3MF	20% 50V	CF104	1-527-981-00	FILTER, CERAMIC		
C114	1-161-379-00	CERAMIC	0.01MF	20% 16V	CNJ201	*1-559-205-11	CORD (WITH CONNECTOR) 5P		
C115	1-123-382-00	ELECT	3.3MF	20% 50V	CNP001	*1-560-060-00	PIN, CONNECTOR 2P		
C116	1-101-005-00	CERAMIC	0.022MF	50V	CNP002	*1-564-337-00	PIN, CONNECTOR 3P		
C117	1-130-489-00	MYLAR	0.033MF	5% 50V	CNP101	*1-560-060-00	PIN, CONNECTOR 2P		
C201	1-124-477-11	ELECT	47MF	20% 16V	CNP201	*1-564-336-00	PIN, CONNECTOR 2P		

SECTION 4
ELECTRICAL PARTS LIST

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
COILS


MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:

UA... : μA..., UPA... : μPA..., UPC... : μPC,
UPD... : μPD...

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Ref.No.	Part No.	Description
901	*A-4351-588-A	MOUNTED PCB, TUNER
902	*1-622-167-12	PC BOARD, 10 KEY
903	*1-622-168-11	PC BOARD, CONTROL
904	*1-622-169-12	PC BOARD, ANTENNA
905	*1-622-170-12	PC BOARD, LAMP
BA301	1-528-120-00	BATTERY, LITHIUM (CR-2025)
C002	1-162-198-31	CERAMIC 8.2PF 10% 50V
C003	1-162-193-31	CERAMIC 3.3PF 10% 50V
C004	1-161-379-00	CERAMIC 0.01MF 20% 16V
C005	1-162-199-31	CERAMIC 10PF 5% 50V
C006	1-162-191-31	CERAMIC 2.2PF 10% 50V
C007	1-162-187-31	CERAMIC 1PF 20% 50V
C008	1-162-203-31	CERAMIC 15PF 5% 50V
C009	1-162-286-31	CERAMIC 220PF 10% 50V
C010	1-161-379-00	CERAMIC 0.01MF 20% 16V
C011	1-162-203-31	CERAMIC 15PF 5% 50V
C012	1-162-211-31	CERAMIC 33PF 5% 50V
C013	1-162-198-31	CERAMIC 8.2PF 10% 50V
C014	1-162-197-31	CERAMIC 6.8PF 10% 50V
C015	1-162-187-31	CERAMIC 1PF 20% 50V
C016	1-161-379-00	CERAMIC 0.01MF 20% 16V
C018	1-161-379-00	CERAMIC 0.01MF 20% 16V
C022	1-161-379-00	CERAMIC 0.01MF 20% 16V
C023	1-102-936-00	CERAMIC 3PF 0.25PF 50V
C024	1-161-379-00	CERAMIC 0.01MF 20% 16V
C025	1-102-959-00	CERAMIC 22PF 5% 50V
C026	1-130-014-00	FILM 470PF 5% 50V
C027	1-123-875-91	ELECT 10MF 20% 50V
C101	1-101-005-00	CERAMIC 0.022MF 50V
C102	1-101-005-00	CERAMIC 0.022MF 50V
C103	1-124-791-11	ELECT 1MF 20% 50V
C104	1-123-875-91	ELECT 10MF 20% 50V
C105	1-162-211-31	CERAMIC 33PF 5% 50V
C106	1-101-005-00	CERAMIC 0.022MF 50V
C107	1-123-875-91	ELECT 10MF 20% 50V
C108	1-161-379-00	CERAMIC 0.01MF 20% 16V
C110	1-101-005-00	CERAMIC 0.022MF 50V
C111	1-124-927-11	ELECT 4.7MF 20% 50V
C112	1-123-382-00	ELECT 3.3MF 20% 50V
C113	1-123-382-00	ELECT 3.3MF 20% 50V
C114	1-161-379-00	CERAMIC 0.01MF 20% 16V
C115	1-123-382-00	ELECT 3.3MF 20% 50V
C116	1-101-005-00	CERAMIC 0.022MF 50V
C117	1-130-489-00	MYLAR 0.033MF 5% 50V
C201	1-124-477-11	ELECT 47MF 20% 16V

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C202	1-124-791-11	ELECT 1MF 20% 50V
C203	1-124-902-00	ELECT 0.47MF 20% 50V
C204	1-124-791-11	ELECT 1MF 20% 50V
C205	1-124-791-11	ELECT 1MF 20% 50V
C206	1-161-494-00	CERAMIC 0.022MF 30% 25V
C207	1-123-875-91	ELECT 10MF 20% 50V
C208	1-123-875-91	ELECT 10MF 20% 50V
C209	1-102-119-00	CERAMIC 0.0015MF 10% 50V
C210	1-102-119-00	CERAMIC 0.0015MF 10% 50V
C211	1-124-611-00	ELECT 1MF 20% 50V
C212	1-124-611-00	ELECT 1MF 20% 50V
C213	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C214	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C215	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C216	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C217	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C218	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C301	1-124-443-00	ELECT 100MF 20% 10V
C303	1-102-959-00	CERAMIC 22PF 5% 50V
C304	1-102-959-00	CERAMIC 22PF 5% 50V
C305	1-124-791-11	ELECT 1MF 20% 50V
C306	1-123-875-91	ELECT 10MF 20% 50V
C307	1-124-463-00	ELECT 0.1MF 20% 50V
C308	1-124-477-11	ELECT 47MF 20% 16V
C309	1-101-005-00	CERAMIC 0.022MF 50V
C310	1-123-875-91	ELECT 10MF 20% 50V
C311	1-136-171-00	FILM 0.33MF 5% 50V
C312	1-130-487-00	MYLAR 0.022MF 5% 50V
C313	1-124-252-00	ELECT 0.33MF 20% 50V
C318	1-161-379-00	CERAMIC 0.01MF 20% 16V
C320	1-161-379-00	CERAMIC 0.01MF 20% 16V
C501	1-161-494-00	CERAMIC 0.022MF 30% 25V
C502	1-161-494-00	CERAMIC 0.022MF 30% 25V
C503	1-162-199-31	CERAMIC 10PF 5% 50V
C504	1-161-494-00	CERAMIC 0.022MF 30% 25V
C505	1-161-494-00	CERAMIC 0.022MF 30% 25V
C506	1-161-494-00	CERAMIC 0.022MF 30% 25V

CF101	1-527-968-00	FILTER, CERAMIC
CF102	1-527-968-00	FILTER, CERAMIC
CF104	1-527-981-00	FILTER, CERAMIC

CNJ201*1-559-205-11 CORD (WITH CONNECTOR) 5P

CNP001*1-560-060-00	PIN, CONNECTOR 2P
CNP002*1-564-337-00	PIN, CONNECTOR 3P
CNP101*1-560-060-00	PIN, CONNECTOR 2P
CNP201*1-564-336-00	PIN, CONNECTOR 2P

ELECTRICAL PARTS

Ref.No.	Part No.	Description
CNP301*1-560-063-00		PIN, CONNECTOR 5P
CNP302*1-560-064-00		PIN, CONNECTOR 6P
CNP303*1-564-341-11		PIN, CONNECTOR 7P
CT021	1-141-227-00	CAP, CERAMIC TRIMMER
CT022	1-141-304-21	TRIMMER, CERAMIC
D001	8-719-918-45	DIODE KV1310
D002	8-719-940-76	DIODE 1SS132
D003	8-719-918-45	DIODE KV1310
D004	8-719-918-45	DIODE KV1310
D021	8-719-902-79	DIODE KV1236Z
D101	8-719-940-76	DIODE 1SS132
D201	8-719-940-76	DIODE 1SS132
D202	8-719-303-18	DIODE SEL1210W
D301	8-719-910-63	DIODE HZ6C2L
D302	8-719-940-76	DIODE 1SS132
D303	8-719-940-76	DIODE 1SS132
D304	8-719-940-76	DIODE 1SS132
D305	8-719-940-76	DIODE 1SS132
D306	8-719-940-76	DIODE 1SS132
D307	8-719-940-76	DIODE 1SS132
D308	8-719-940-76	DIODE 1SS132
D309	8-719-940-76	DIODE 1SS132
D310	8-719-940-76	DIODE 1SS132
D311	8-719-940-76	DIODE 1SS132
D312	8-719-940-76	DIODE 1SS132
D313	8-719-940-76	DIODE 1SS132
D314	8-719-940-76	DIODE 1SS132
D315	8-719-940-76	DIODE 1SS132
D316	8-719-940-76	DIODE 1SS132
D319	8-719-940-76	DIODE 1SS132
D320	8-719-940-76	DIODE 1SS132
IC101	8-759-801-81	IC LA1265
IC201	8-759-801-80	IC LA3401
IC301	8-759-206-73	IC TC9302AF-012
IC302	8-759-202-63	IC TC9172P
IFT101	1-404-659-11	COIL, DISCRIMINATOR
IFT102	1-404-713-11	TRANSFORMER, IF
L001	*1-422-336-11	COIL, AIR-CORE
L002	*1-422-040-00	COIL, AIR-CORE
L003	*1-422-081-00	COIL (WITH CORE)
L004	*1-422-039-00	COIL, AIR-CORE
L005	1-459-396-00	COIL (WITH CORE)
L022	1-402-152-11	ANTENNA, FERRITE-ROD (MW)

ELECTRICAL PARTS


Ref.No.	Part No.	Description
L023	1-406-089-11	COIL (OSC)
L101	1-410-602-21	MICRO INDUCTOR 120UH
L201	1-408-924-00	MICRO INDUCTOR 10MMH
L202	1-408-924-00	MICRO INDUCTOR 10MMH
LCD1	1-807-454-41	DISPLAY PANEL, LIQUID CRYSTAL
PL001	1-518-527-51	LAMP, PILOT
PL002	1-518-527-51	LAMP, PILOT
Q001	8-729-304-38	TRANSISTOR 2SC3391
Q002	8-729-304-38	TRANSISTOR 2SC3391
Q003	8-729-672-42	TRANSISTOR 2SC2724
Q004	8-729-672-42	TRANSISTOR 2SC2724
Q101	8-729-672-42	TRANSISTOR 2SC2724
Q201	8-729-115-79	TRANSISTOR BA1A4M
Q202	8-729-115-79	TRANSISTOR BA1A4M
Q301	8-729-600-27	TRANSISTOR 2SC634SP
Q302	8-729-600-27	TRANSISTOR 2SC634SP
Q303	8-729-115-79	TRANSISTOR BA1A4M
Q304	8-729-159-01	TRANSISTOR 2SA1348
Q305	8-729-159-01	TRANSISTOR 2SA1348
Q309	8-729-201-56	TRANSISTOR 2SK246GR2
Q310	8-729-600-27	TRANSISTOR 2SC634SP
R001	1-249-441-11	CARBON 100K 5% 1/6W
R002	1-215-491-00	CARBON 820K 5% 1/6W
R003	1-249-401-11	CARBON 47 5% 1/6W
R004	1-249-401-11	CARBON 47 5% 1/6W
R005	1-249-441-11	CARBON 100K 5% 1/6W
R006	1-215-491-00	CARBON 820K 5% 1/6W
R007	1-249-411-11	CARBON 330 5% 1/6W
R008	1-249-405-11	CARBON 100 5% 1/6W
R009	1-249-429-11	CARBON 10K 5% 1/6W
R010	1-249-429-11	CARBON 10K 5% 1/6W
R011	1-249-422-11	CARBON 2.7K 5% 1/6W
R012	1-249-431-11	CARBON 15K 5% 1/6W
R013	1-215-483-00	CARBON 390K 5% 1/6W
R014	1-249-405-11	CARBON 100 5% 1/6W
R024	1-249-429-11	CARBON 10K 5% 1/6W
R025	1-249-429-11	CARBON 10K 5% 1/6W
R051	1-214-937-00	CARBON 1M 5% 1/2W
R052	1-244-897-11	CARBON 10K 5% 1/2W
R101	1-215-491-00	CARBON 820K 5% 1/6W
R102	1-249-411-11	CARBON 330 5% 1/6W
R103	1-249-434-11	CARBON 27K 5% 1/6W
R104	1-249-423-11	CARBON 3.3K 5% 1/6W
R105	1-247-849-00	CARBON 5.6K 5% 1/6W
R106	1-249-404-00	CARBON 82 5% 1/6W


ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R107	1-249-429-11	CARBON	10K	5%	1/6W
R108	1-249-429-11	CARBON	10K	5%	1/6W
R109	1-249-413-11	CARBON	470	5%	1/6W
R110	1-249-423-11	CARBON	3.3K	5%	1/6W
R201	1-249-423-11	CARBON	3.3K	5%	1/6W
R202	1-249-437-11	CARBON	47K	5%	1/6W
R203	1-249-437-11	CARBON	47K	5%	1/6W
R204	1-249-417-11	CARBON	1K	5%	1/6W
R205	1-249-437-11	CARBON	47K	5%	1/6W
R206	1-249-437-11	CARBON	47K	5%	1/6W
R207	1-249-437-11	CARBON	47K	5%	1/6W
R208	1-249-437-11	CARBON	47K	5%	1/6W
R209	1-249-419-11	CARBON	1.5K	5%	1/6W
R210	1-249-419-11	CARBON	1.5K	5%	1/6W
R211	1-249-429-11	CARBON	10K	5%	1/6W
R212	1-249-429-11	CARBON	10K	5%	1/6W
R220	1-249-452-11	CARBON	2.7	5%	1/4W
R302	1-249-419-11	CARBON	1.5K	5%	1/6W
R303	1-249-435-11	CARBON	33K	5%	1/6W
R304	1-249-441-11	CARBON	100K	5%	1/6W
R305	1-249-435-11	CARBON	33K	5%	1/6W
R306	1-249-435-11	CARBON	33K	5%	1/6W
R307	1-249-423-11	CARBON	3.3K	5%	1/6W
R308	1-249-425-11	CARBON	4.7K	5%	1/6W
R309	1-249-417-11	CARBON	1K	5%	1/6W
R310	1-249-405-11	CARBON	100	5%	1/6W
R311	1-249-405-11	CARBON	100	5%	1/6W
R312	1-249-437-11	CARBON	47K	5%	1/6W
R313	1-249-414-11	CARBON	560	5%	1/6W
R314	1-249-421-11	CARBON	2.2K	5%	1/6W
R315	1-249-435-11	CARBON	33K	5%	1/6W
R316	1-249-416-11	CARBON	820	5%	1/6W
R317	1-249-410-11	CARBON	270	5%	1/6W
R318	1-249-425-11	CARBON	4.7K	5%	1/6W
R319	1-249-425-11	CARBON	4.7K	5%	1/6W
ROD1	1-501-270-00	ANTENNA, TELESCOPIC			
RT101	1-228-996-00	RES, ADJ, CARBON 47K			
RT102	1-230-629-11	RES, ADJ, CARBON 3.3K			

ELECTRICAL PARTS

Ref.No.	Part No.	Description
S301	1-554-303-21	SWITCH, KEY BOARD (1)
S302	1-554-303-21	SWITCH, KEY BOARD (2)
S303	1-554-303-21	SWITCH, KEY BOARD (3)
S304	1-554-303-21	SWITCH, KEY BOARD (4)
S305	1-554-303-21	SWITCH, KEY BOARD (5)
S306	1-554-303-21	SWITCH, KEY BOARD (6)
S307	1-554-303-21	SWITCH, KEY BOARD (7)
S308	1-554-303-21	SWITCH, KEY BOARD (8)
S309	1-554-303-21	SWITCH, KEY BOARD (9)
S310	1-554-303-21	SWITCH, KEY BOARD (MEMORY)
S311	1-554-303-21	SWITCH, KEY BOARD (0)
S312	1-554-303-21	SWITCH, KEY BOARD (ENTER)
S313	1-570-876-11	SWITCH, KEY BOARD (MEMORY SCAN)
S314	1-570-876-11	SWITCH, KEY BOARD (+)
S315	1-570-876-11	SWITCH, KEY BOARD (-)
S316	1-570-876-11	SWITCH, KEY BOARD (BAND)
S317	1-570-876-11	SWITCH, KEY BOARD (STEREO MUTING)
TB001	1-536-708-00	TERMINAL BOARD, PUSH 4P
X201	1-567-250-11	OSCILLATOR, CERAMIC (456kHz)
X301	1-567-736-11	VIBRATOR, CRYSTAL (7.2MHz)

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

FH-209W
FH-204

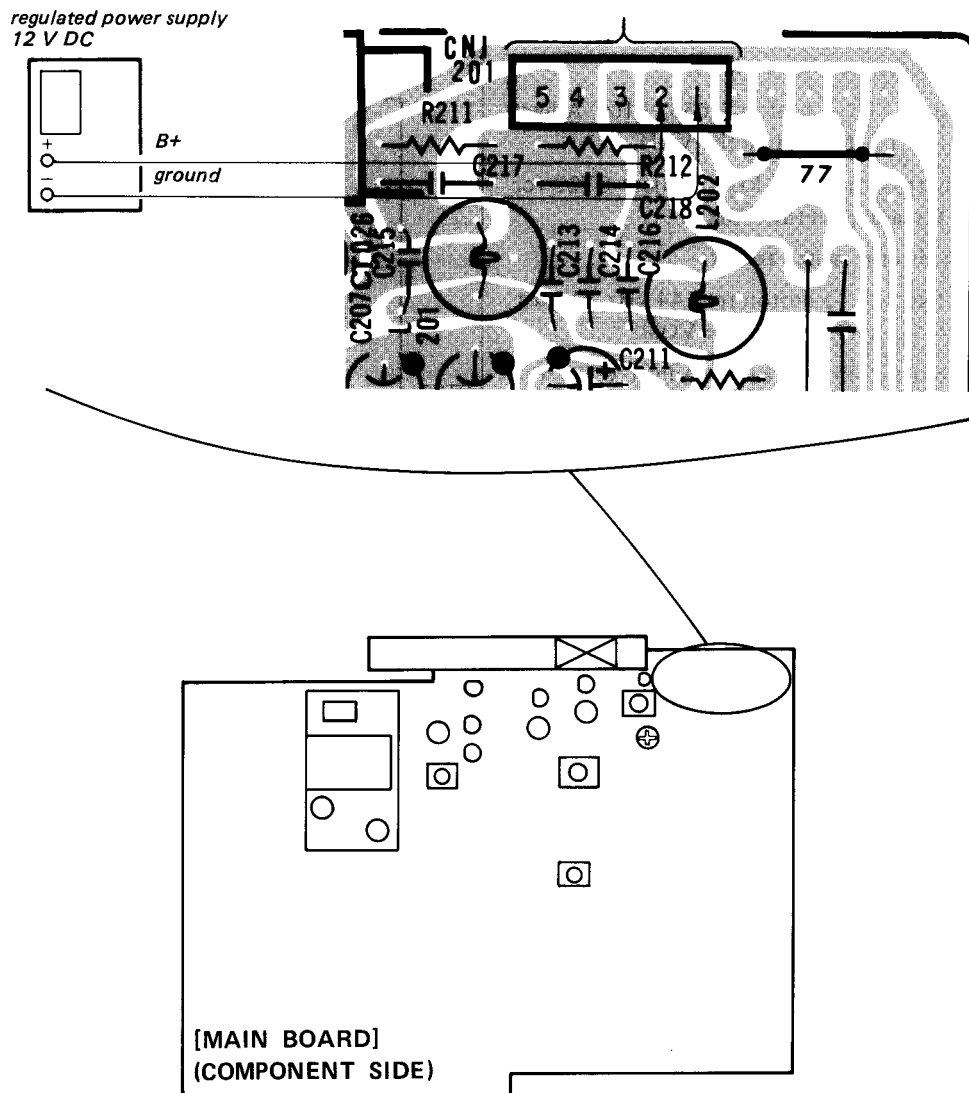
FM STEREO/FM-AM TUNER (ST-209)

AEP Model
UK Model

REPAIRING PRECAUTION

[To apply B+ voltage]

The power of this unit is fed from other unit.
When the unit operates individually, connect the regulated power supply to the point as shown in the below fig.



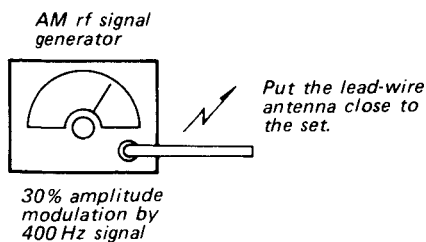
SECTION 1

ELECTRICAL ADJUSTMENTS

AM SECTION

Setting:

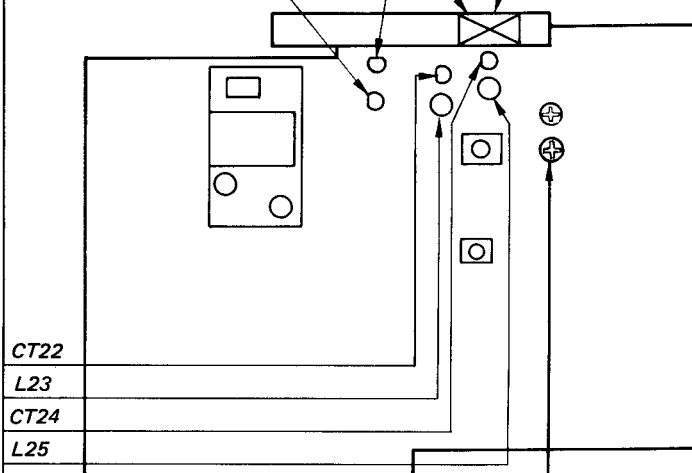
BAND selector switch: MW or LW



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
270 kHz	162 kHz
CT23	L22

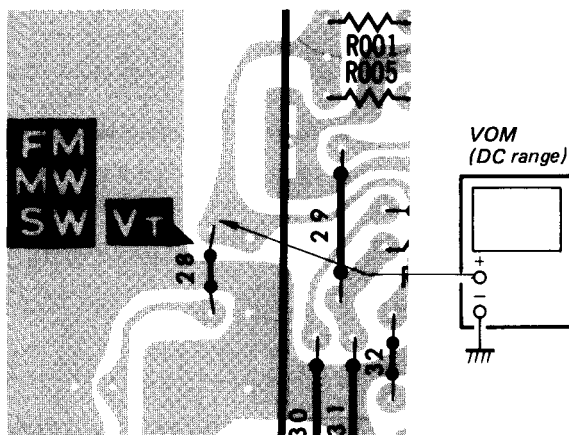
MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
1,404 kHz	603 kHz
CT21	L22



MW/LW OSC Voltage Adjustment

Procedure:

1. Set BAND selector switch to MW.
2. Push TUNING (+, -) button for 531 kHz. Adjust L23 for 1 – 1.1 V reading on the VOM.
3. Push the button for 1,611 kHz. Adjust CT22 for 8.0 – 8.5 V reading on the VOM.
4. Set BAND selector switch to LW.
5. Push TUNING (+, -) button for 144 kHz. Adjust L25 for 1 – 1.1 V reading on the VOM.
6. Push the button for 288 kHz. Adjust CT24 for 8.0 – 8.5 V reading on the VOM.



AM Tuned Indication Lighting Level Adjustment

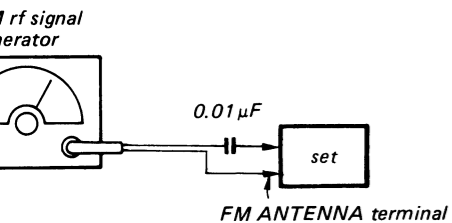
BAND select switch: AM

1. Output 0.7 mV (57 dB), 999 kHz from AM rf signal generator.
2. Adjust RT102 so that the LED lights up.

ON

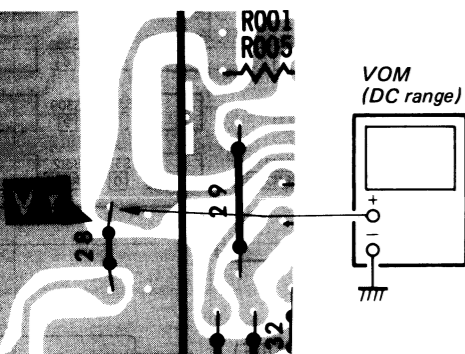
ector switch FM

Voltage Adjustment



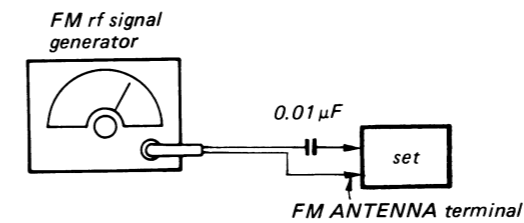
Carrier frequency: 108 MHz
Modulation: 1 kHz, 75 kHz deviation
Output level: as low as possible

Push the TUNING (+, -) button for 108 MHz.
Adjust L5 for 8.0 - 8.5 V reading on the VOM.



FM Tracking Adjustment

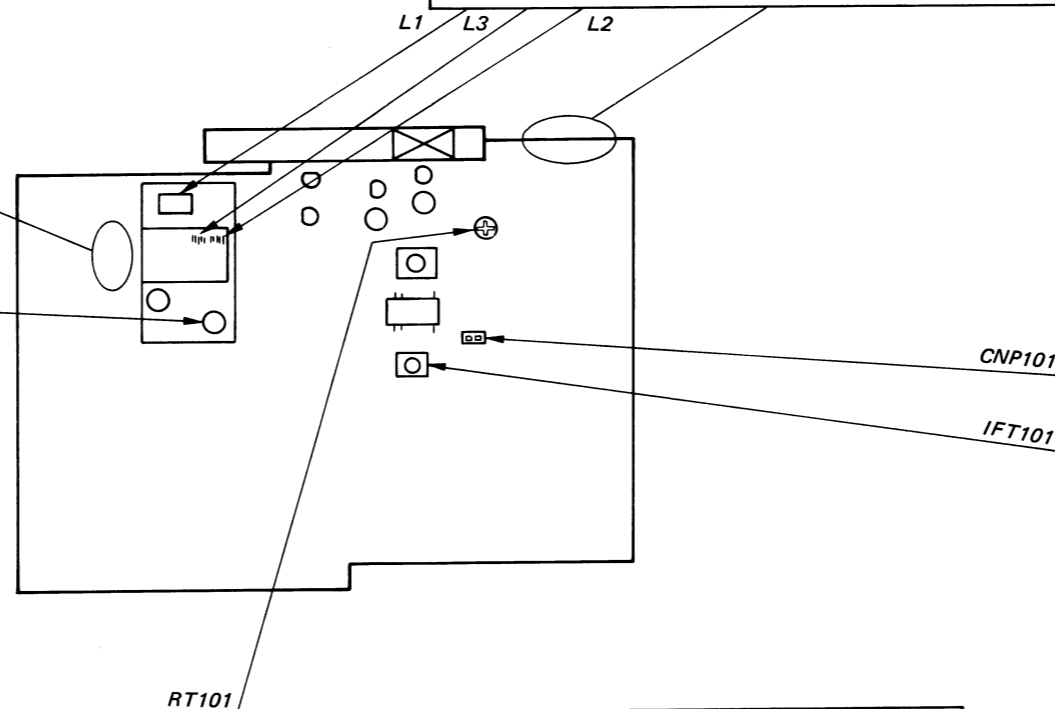
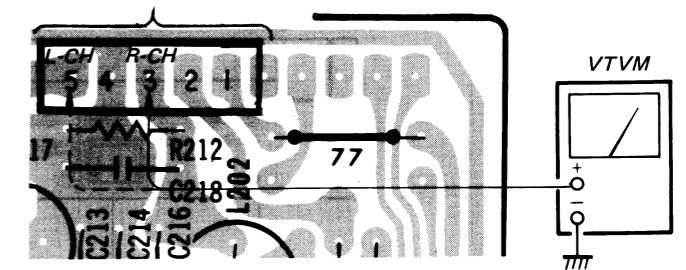
Setting:



Carrier frequency: 98 MHz
Modulation: 1 kHz, 75 kHz deviation
Output level: 3.16 μ V (10 dB)

Procedure:

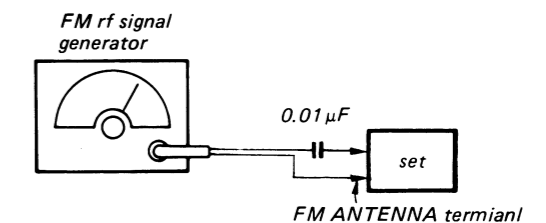
1. Push TUNING (+, -) button for 98 MHz.
2. Approach L2 and L3 not to contact each other.
3. Adjust L1 and L3, and repeat the adjustment 2 - 3 times for maximum VTVM reading.



Note: FM discriminator alignment should be made after FM tracking adjustment.

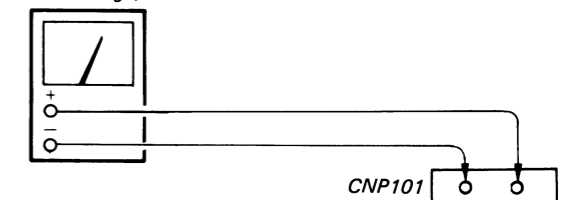
FM Discriminator Alignment (NULL Check)

Setting:



Carrier frequency: 98 MHz
Modulation: 1 kHz, 75 kHz deviation
Output level: 1 mV (60 dB)

VOM
(DC range)



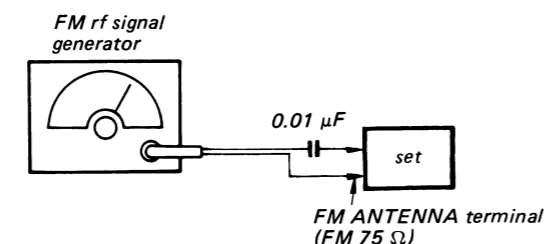
Procedure:

1. Push the TUNING (+, -) button for 98 MHz.
2. Adjust IFT101 for 0 V reading on the VOM.

FM Muting Level Adjustment

Setting:

STEREO MUTING switch ON

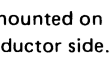


Carrier frequency: 98 MHz
Modulation: 1 kHz, 75 kHz deviation
Output level: 22.4 μ V (27 dB)

Procedure:

1. Check that "MUTING" is flashed on the indicator.
2. Push the TUNING (+, -) button for 98 MHz.
3. Adjust RT101, then check that "TUNED" is flashed on the indicator.

ST-9 for Semiconductor Lead Layouts.



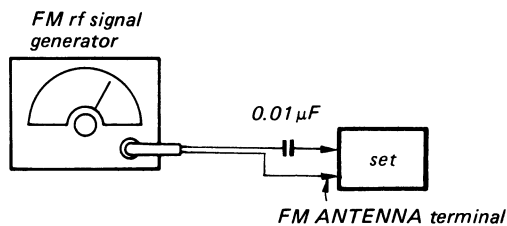
FM SECTION

Setting:

BAND selector switch FM

FM OSC Voltage Adjustment

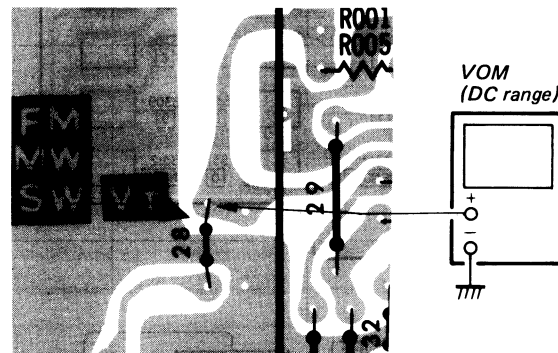
Setting:



Carrier frequency: 108 MHz
Modulation: 1 kHz, 75 kHz deviation
Output level: as low as possible

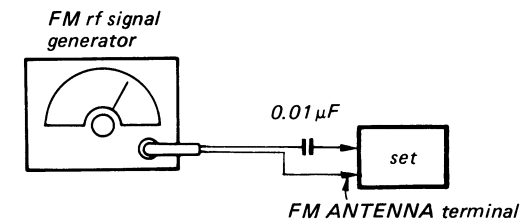
Procedure:

1. Push the TUNING (+, -) button for 108 MHz.
2. Adjust L5 for 8.0 – 8.5 V reading on the VOM.



FM Tracking Adjustment

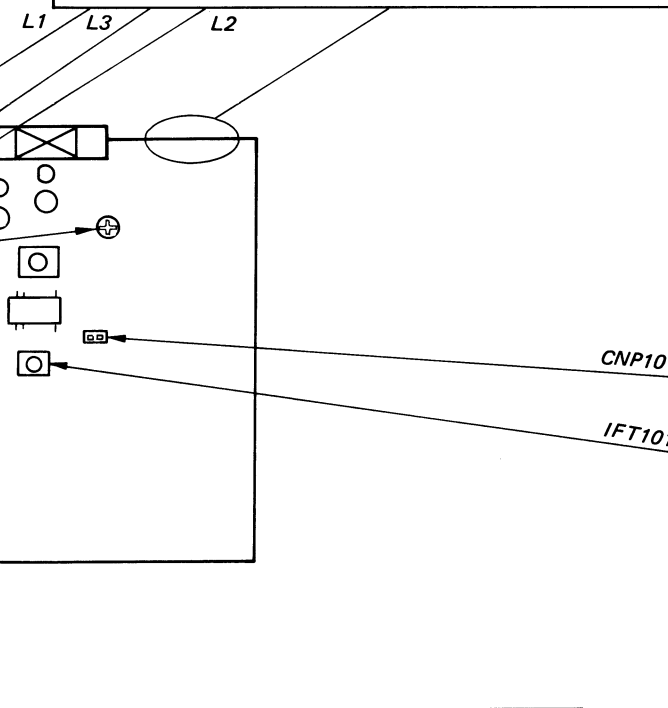
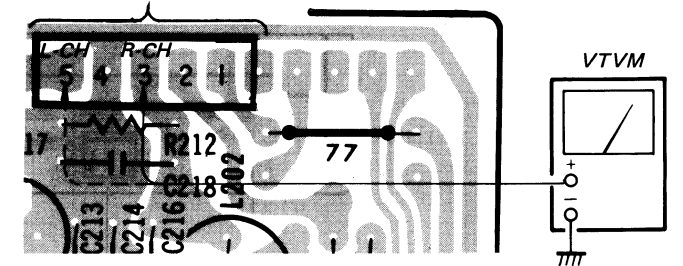
Setting:



Carrier frequency: 98 MHz
Modulation: 1 kHz, 75 kHz deviation
Output level: 3.16 μV (10 dB)

Procedure:

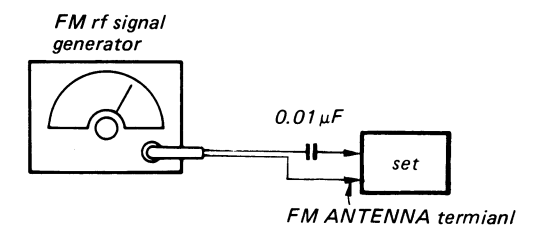
1. Push TUNING (+, -) button for 98 MHz.
2. Approach L2 and L3 not to contact each other.
3. Adjust L1 and L3, and repeat the adjustment 2 – 3 times for maximum VTVM reading.



Note: FM discriminator alignment should be made after FM tracking adjustment.

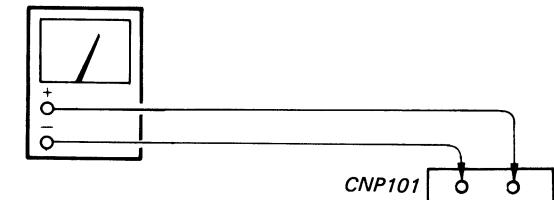
FM Discriminator Alignment (NULL Check)

Setting:



Carrier frequency: 98 MHz
Modulation: 1 kHz, 75 kHz deviation
Output level: 1 mV (60 dB)

VOM (DC range)



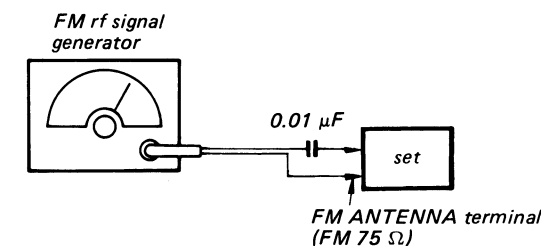
Procedure:

1. Push the TUNING (+, -) button for 98 MHz.
2. Adjust IFT101 for 0 V reading on the VOM.

FM Muting Level Adjustment

Setting:

STEREO MUTING switch ON



Carrier frequency: 98 MHz
Modulation: 1 kHz, 75 kHz deviation
Output level: 22.4 μV (27 dB)

Procedure:

1. Check that "MUTING" is flashed on the indicator.
2. Push the TUNING (+, -) button for 98 MHz.
3. Adjust RT101, then check that "TUNED" is flashed on the indicator.

SECTION 2
DIAGRAMS

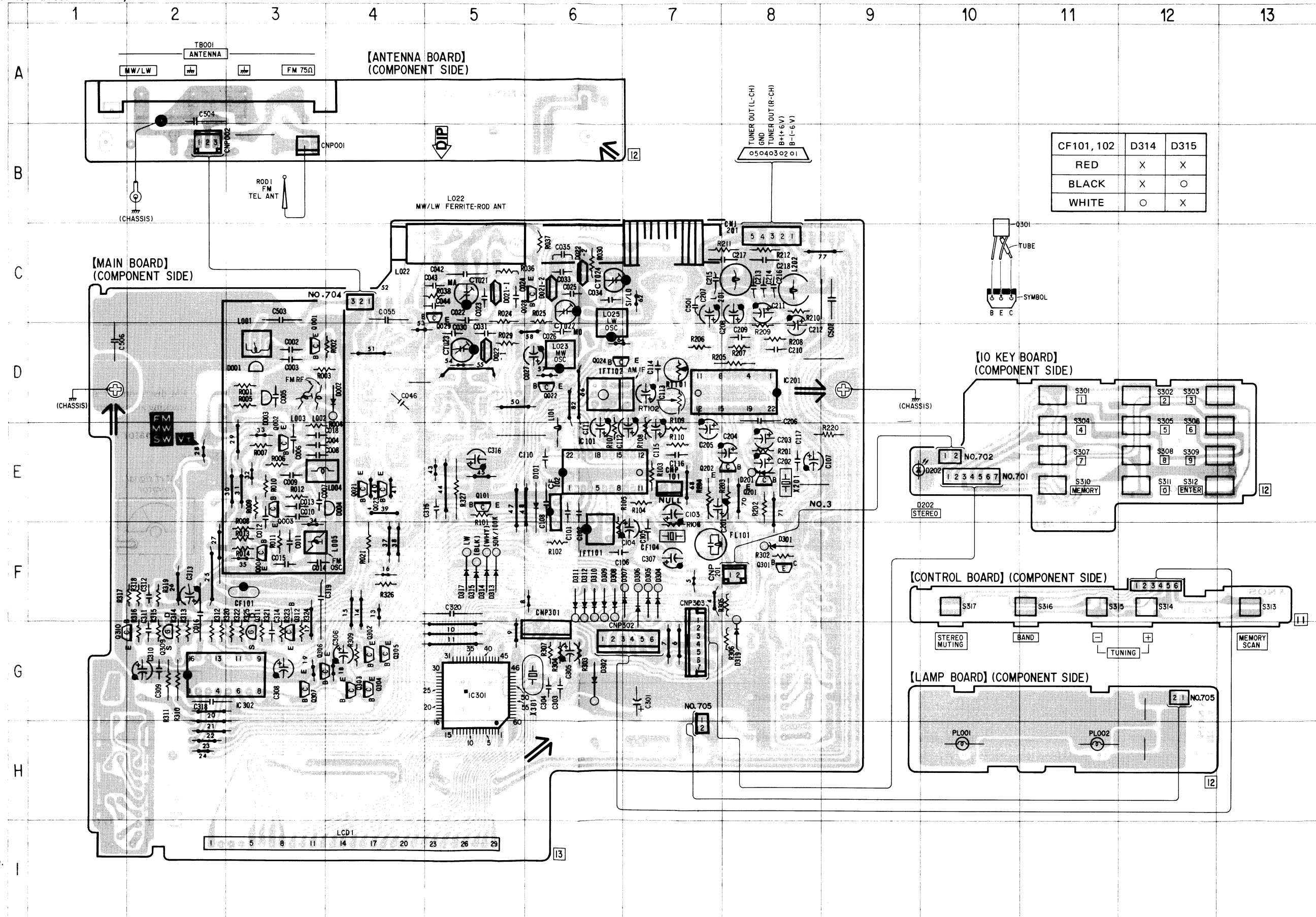
2-1. MOUNTING DIAGRAM

- See page ST-9 for Semiconductor Lead Layouts.

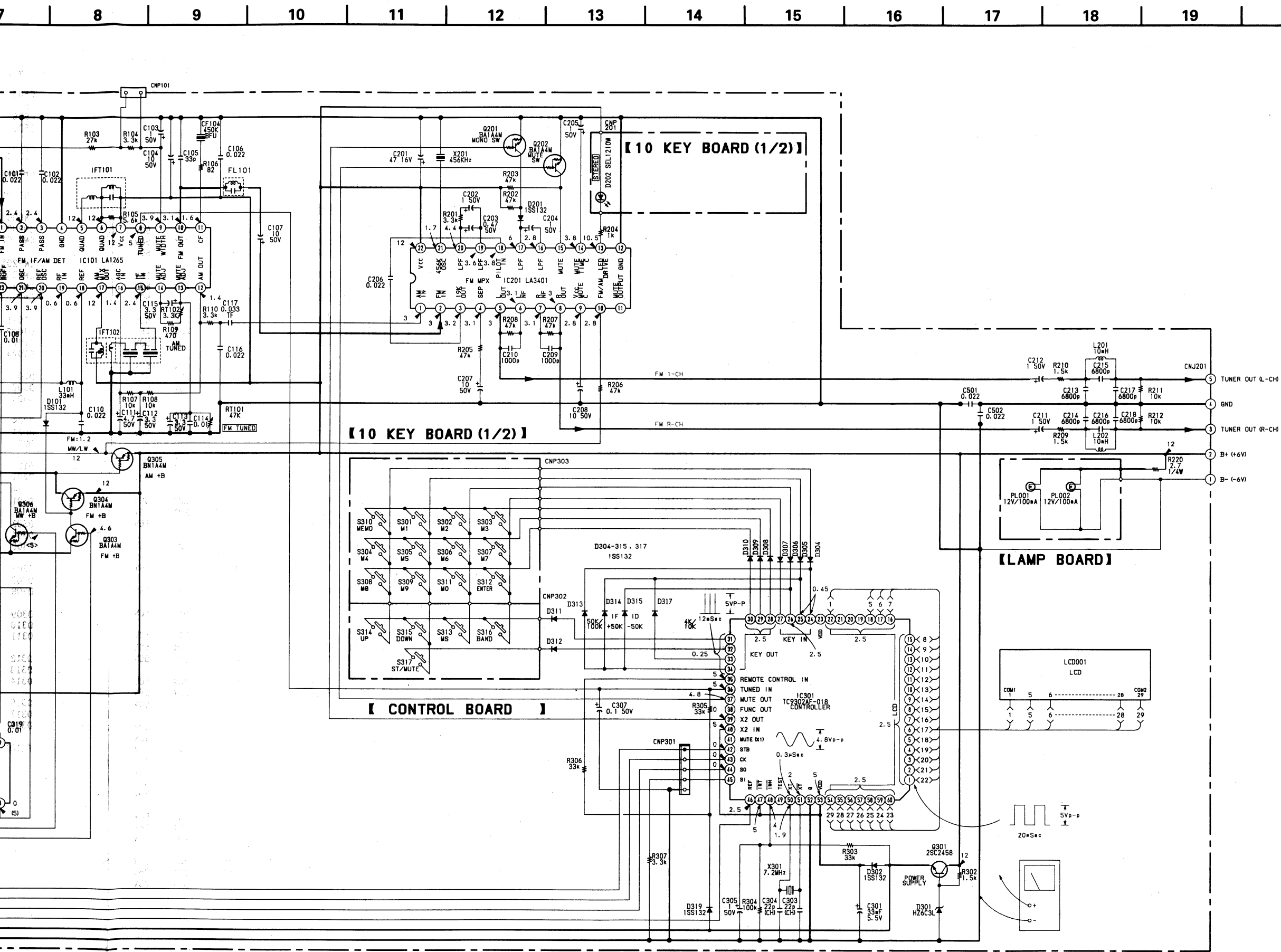
• SMICONDUCTOR
LOCATION

Ref. No.	Location
D001	D-3
D002	D-4
D003	D-3
D004	E-4
D021-1	C-5
D021-2	C-6
D022-1	D-5
D022-2	C-6
D101	E-6
D201	E-8
D301	F-8
D302	G-6
D304	F-7
D305	F-7
D306	F-7
D307	F-7
D308	F-6
D309	F-6
D310	F-6
D311	F-6
D312	F-6
D313	F-5
D314	F-5
D315	F-5
D317	F-5
D319	G-8
IC101	E-6
IC201	D-8
IC301	G-5
IC302	G-2
Q001	D-3
Q002	E-3
Q003	E-3
Q004	F-3
Q021	E-4
Q022	D-6
Q023	E-4
Q024	D-6
Q028	C-6
Q029	D-5
Q101	E-4
Q201	E-8
Q202	E-8
Q301	F-8
Q302	G-4
Q303	G-4
Q304	G-4
Q305	G-4
Q306	G-3
Q307	G-3
Q309	G-2
Q310	G-1
Q311	G-3
Q312	G-3

Note:
• ■ : part mounted on
the conductor side.



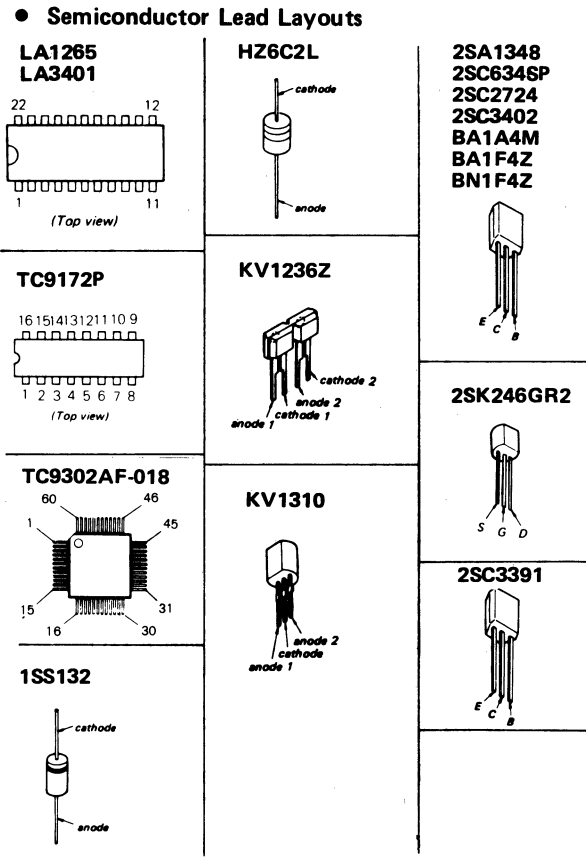




- Note:**
- All capacitors are in μF unless otherwise noted. pF : μF 50V or less are not indicated except for electrolytics and tantalums.
 - All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
 - \rightarrow : signal path.
 - \bullet : B+ bus.
 - \bullet : B- bus.
 - \square : adjustment for repair.
 - Voltages are dc with respect to ground unless otherwise noted.
 - Readings are taken under no-signal (detuned) conditions with a VOM (50 $\text{k}\Omega/\text{V}$).
no mark : FM mode
< > : MW mode
() : LW mode

• Switch

Ref. No.	Switch	Position
S301	1	
S302	2	
S303	3	
S304	4	
S305	5	
S306	6	
S307	7	
S308	8	
S309	9	
S310	MEMORY	
S311	0	
S312	ENTER	
S313	MEMORY SCAN	
S314	+	
S315	-	
S316	BAND	
S317	STEREO MUTING	



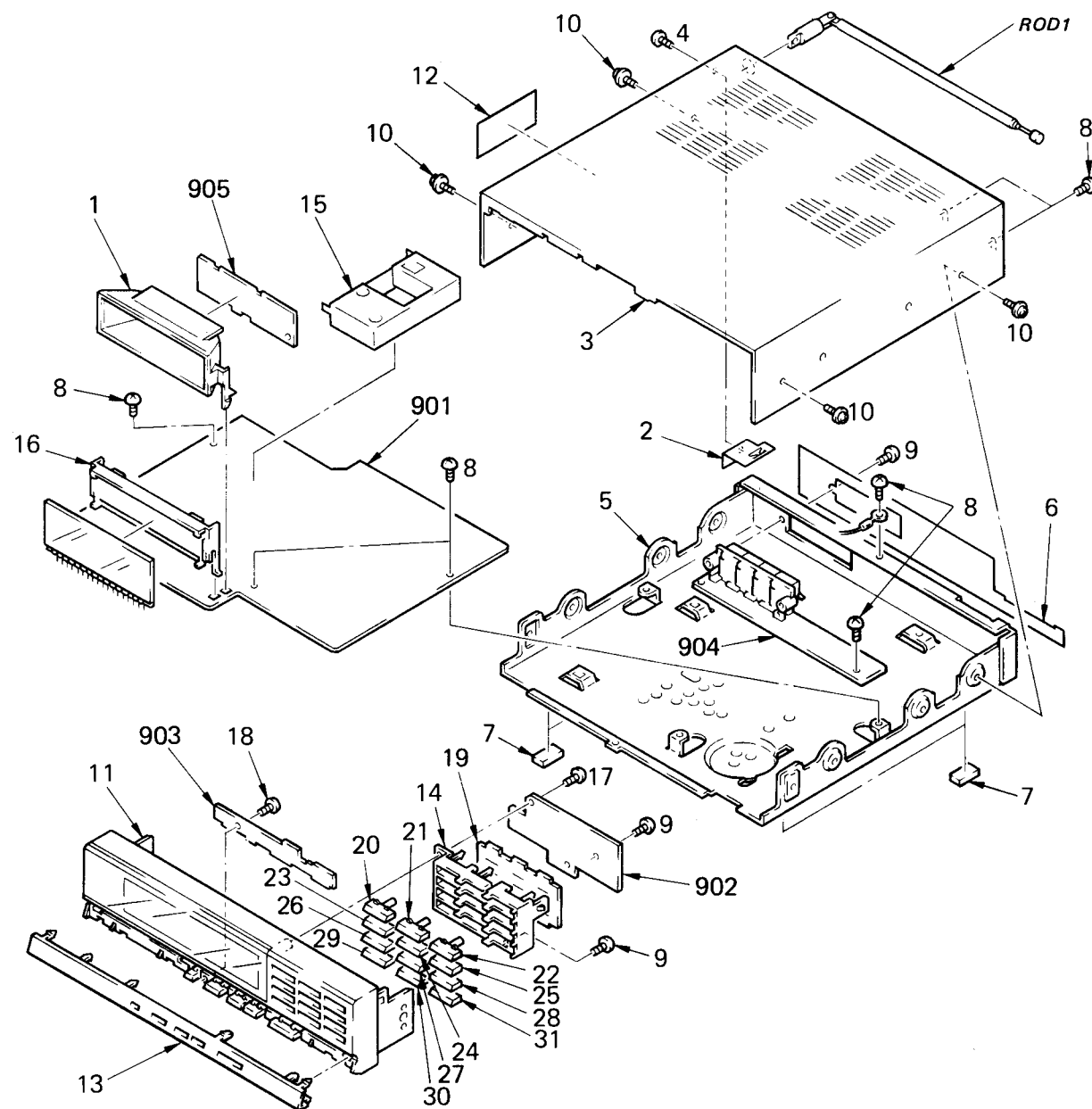
SECTION 3
EXPLODED VIEW AND PARTS LIST

NOTE:

The mechanical parts with no reference number in the exploded views are not supplied.

Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The construction parts of an assembled part are indicated with a collation number in the remark column.



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	*4-917-275-01	HOUSE, LAMP		19	*4-919-607-01	SPACER	
2	*4-919-611-01	BRACKET, ANT		20	4-920-176-01	BUTTON (1)	
3	4-920-137-01	CASE		21	4-920-176-11	BUTTON (2)	
4	7-682-147-09	SCREW +B 3X6		22	4-920-176-21	BUTTON (3)	
5	*4-919-617-01	CHASSIS		23	4-920-176-31	BUTTON (4)	
6	*4-919-613-11	COVER, REAR		24	4-920-176-41	BUTTON (5)	
7	4-919-608-01	FOOT		25	4-920-176-51	BUTTON (6)	
8	7-682-147-01	SCREW +BVTP 3X6 (S)		26	4-920-176-61	BUTTON (7)	
9	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S		27	4-920-176-71	BUTTON (8)	
10	7-682-148-09	SCREW, M3 CASE STOPPER		28	4-920-176-81	BUTTON (9)	
11	X-4919-627-1	PANEL ASSY		29	4-920-175-01	BUTTON (MEMORY)	
12	*4-919-668-01	LABEL, MODEL NUMBER (AE)		30	4-920-176-91	BUTTON (0)	
13	4-919-616-02	PANEL, CONTROL		31	4-920-175-11	BUTTON (ENTER)	
14	*4-919-614-01	RETAINER, BUTTON		901	*A-4351-585-A	MOUNTED PCB, TUNER	
15	*4-874-704-01	CASE, SHIELD		902	*1-622-167-12	PC BOARD, 10 KEY	
16	*4-909-633-01	ILLUMINATOR		903	*1-622-168-11	PC BOARD, CONTROL	
17	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S		904	*1-622-169-12	PC BOARD, ANTENNA	
18	7-685-133-19	SCREW +P 2.6X6 TYPE2 SLIT		905	*1-622-170-12	PC BOARD, LAMP	
				ROD1	1-501-270-00	ANTENNA, TELESCOPIC	

- ST-10 -

SECTION 4
ELECTRICAL PARTS LIST

NOTE:

Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF: μ F, PF: μ F.

RESISTORS

All resistors are in ohms.
F : nonflammable

COILS

MMH : mH, UH : μ H

SEMICONDUCTORS

In each case, U : μ , for example:UA...: μ A..., UPA...: μ PA..., UPC...: μ PC, UPD...: μ PD...

ELECTRICAL PARTS					
Ref.No.	Part No.	Description			
901	*A-4351-585-A	MOUNTED PCB, TUNER			
902	*1-622-167-12	PC BOARD, 10 KEY			
903	*1-622-168-11	PC BOARD, CONTROL			
904	*1-622-169-12	PC BOARD, ANTENNA			
905	*1-622-170-12	PC BOARD, LAMP			
C002	1-162-198-31	CERAMIC	8.2PF	10%	50V
C003	1-162-193-31	CERAMIC	3.3PF	10%	50V
C004	1-161-379-00	CERAMIC	0.01MF	20%	16V
C005	1-162-199-31	CERAMIC	10PF	5%	50V
C006	1-162-191-31	CERAMIC	2.2PF	10%	50V
C007	1-162-187-31	CERAMIC	1PF	20%	50V
C008	1-162-203-31	CERAMIC	15PF	5%	50V
C009	1-162-286-31	CERAMIC	220PF	10%	50V
C010	1-161-379-00	CERAMIC	0.01MF	20%	16V
C011	1-162-203-31	CERAMIC	15PF	5%	50V
C012	1-162-211-31	CERAMIC	33PF	5%	50V
C013	1-162-198-31	CERAMIC	8.2PF	10%	50V
C014	1-162-197-31	CERAMIC	6.8PF	10%	50V
C015	1-162-187-31	CERAMIC	1PF	20%	50V
C016	1-161-379-00	CERAMIC	0.01MF	20%	16V
C018	1-161-379-00	CERAMIC	0.01MF	20%	16V
C022	1-161-379-00	CERAMIC	0.01MF	20%	16V
C023	1-102-936-00	CERAMIC	3PF	0.25PF	50V
C024	1-161-379-00	CERAMIC	0.01MF	20%	16V
C025	1-102-893-00	CERAMIC	18PF	5%	50V
C026	1-130-014-00	FILM	470PF	5%	50V
C027	1-123-875-91	ELECT	10MF	20%	50V
C030	1-102-971-00	CERAMIC	82PF	5%	50V
C031	1-161-379-00	CERAMIC	0.01MF	20%	16V
C033	1-102-816-00	CERAMIC	120PF	5%	50V
C034	1-130-047-00	FILM	180PF	5%	50V
C035	1-102-942-00	CERAMIC	5PF	0.5PF	50V
C042	1-161-494-00	CERAMIC	0.022MF	30%	25V
C043	1-101-005-00	CERAMIC	0.022MF		50V
C044	1-161-327-00	CERAMIC	0.0033MF	20%	16V
C046	1-161-379-00	CERAMIC	0.01MF	20%	16V
C101	1-101-005-00	CERAMIC	0.022MF		50V
C102	1-101-005-00	CERAMIC	0.022MF		50V
C103	1-124-791-11	ELECT	1MF	20%	50V
C104	1-123-875-91	ELECT	10MF	20%	50V
C105	1-162-211-31	CERAMIC	33PF	5%	50V
C106	1-101-005-00	CERAMIC	0.022MF		50V
C107	1-123-875-91	ELECT	10MF	20%	50V
C108	1-161-379-00	CERAMIC	0.01MF	20%	16V
C110	1-101-005-00	CERAMIC	0.022MF		50V

ELECTRICAL PARTS					
Ref.No.	Part No.	Description			
C111	1-124-927-11	ELECT	4.7MF	20%	50V
C112	1-123-382-00	ELECT	3.3MF	20%	50V
C113	1-123-382-00	ELECT	3.3MF	20%	50V
C114	1-161-379-00	CERAMIC	0.01MF	20%	16V
C115	1-123-382-00	ELECT	3.3MF	20%	50V
C116	1-101-005-00	CERAMIC	0.022MF		50V
C117	1-130-489-00	MYLAR	0.033MF	5%	50V
C201	1-124-477-11	ELECT	47MF	20%	16V
C202	1-124-791-11	ELECT	1MF	20%	50V
C203	1-124-902-00	ELECT	0.47MF	20%	50V
C204	1-124-791-11	ELECT	1MF	20%	50V
C205	1-124-791-11	ELECT	1MF	20%	50V
C206	1-161-494-00	CERAMIC	0.022MF	30%	25V
C207	1-123-875-91	ELECT	10MF	20%	50V
C208	1-123-875-91	ELECT	10MF	20%	50V
C209	1-102-074-00	CERAMIC	0.001MF	10%	50V
C210	1-102-074-00	CERAMIC	0.001MF	10%	50V
C211	1-124-611-00	ELECT	1MF	20%	50V
C212	1-124-611-00	ELECT	1MF	20%	50V
C213	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C214	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C215	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C216	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C217	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C218	1-161-329-00	CERAMIC	0.0068MF	20%	16V
C301	1-126-211-51	ELECT	33000MF	5.5V	
C303	1-102-959-00	CERAMIC	22PF	5%	50V
C304	1-102-959-00	CERAMIC	22PF	5%	50V
C305	1-124-791-11	ELECT	1MF	20%	50V
C306	1-123-875-91	ELECT	10MF	20%	50V
C307	1-124-463-00	ELECT	0.1MF	20%	50V
C308	1-124-477-11	ELECT	47MF	20%	16V
C309	1-101-005-00	CERAMIC	0.022MF		50V
C310	1-123-875-91	ELECT	10MF	20%	50V
C311	1-136-171-00	FILM	0.33MF	5%	50V
C312	1-130-487-00	MYLAR	0.022MF	5%	50V
C313	1-124-252-00	ELECT	0.33MF	20%	50V
C314	1-136-171-00	FILM	0.33MF	5%	50V
C315	1-130-487-00	MYLAR	0.022MF	5%	50V
C316	1-124-252-00	ELECT	0.33MF	20%	50V
C318	1-161-379-00	CERAMIC	0.01MF	20%	16V
C319	1-161-379-00	CERAMIC	0.01MF	20%	16V
C320	1-161-379-00	CERAMIC	0.01MF	20%	16V
C501	1-161-494-00	CERAMIC	0.022MF	30%	25V
C502	1-161-494-00	CERAMIC	0.022MF	30%	25V

- ST-11 -

SECTION 4
ELECTRICAL PARTS LIST

NOTE:

Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF: μ F, PF: μ P.

RESISTORS

All resistors are in ohms.
F : nonflammable

COILS

MMH : mH, UH : μ H

SEMICONDUCTORS

In each case, U : μ , for example:UA... : μ A..., UPA... : μ PA..., UPC... : μ PC,
UPD... : μ PD...

ELECTRICAL PARTS

Ref.No.	Part No.	Description
901	*A-4351-585-A	MOUNTED PCB, TUNER
902	*1-622-167-12	PC BOARD, 10 KEY
903	*1-622-168-11	PC BOARD, CONTROL
904	*1-622-169-12	PC BOARD, ANTENNA
905	*1-622-170-12	PC BOARD, LAMP
C002	1-162-198-31	CERAMIC 8.2PF 10% 50V
C003	1-162-193-31	CERAMIC 3.3PF 10% 50V
C004	1-161-379-00	CERAMIC 0.01MF 20% 16V
C005	1-162-199-31	CERAMIC 10PF 5% 50V
C006	1-162-191-31	CERAMIC 2.2PF 10% 50V
C007	1-162-187-31	CERAMIC 1PF 20% 50V
C008	1-162-203-31	CERAMIC 15PF 5% 50V
C009	1-162-286-31	CERAMIC 220PF 10% 50V
C010	1-161-379-00	CERAMIC 0.01MF 20% 16V
C011	1-162-203-31	CERAMIC 15PF 5% 50V
C012	1-162-211-31	CERAMIC 33PF 5% 50V
C013	1-162-198-31	CERAMIC 8.2PF 10% 50V
C014	1-162-197-31	CERAMIC 6.8PF 10% 50V
C015	1-162-187-31	CERAMIC 1PF 20% 50V
C016	1-161-379-00	CERAMIC 0.01MF 20% 16V
C018	1-161-379-00	CERAMIC 0.01MF 20% 16V
C022	1-161-379-00	CERAMIC 0.01MF 20% 16V
C023	1-102-936-00	CERAMIC 3PF 0.25PF 50V
C024	1-161-379-00	CERAMIC 0.01MF 20% 16V
C025	1-102-893-00	CERAMIC 18PF 5% 50V
C026	1-130-014-00	FILM 470PF 5% 50V
C027	1-123-875-91	ELECT 10MF 20% 50V
C030	1-102-971-00	CERAMIC 82PF 5% 50V
C031	1-161-379-00	CERAMIC 0.01MF 20% 16V
C033	1-102-816-00	CERAMIC 120PF 5% 50V
C034	1-130-047-00	FILM 180PF 5% 50V
C035	1-102-942-00	CERAMIC 5PF 0.5PF 50V
C042	1-161-494-00	CERAMIC 0.022MF 30% 25V
C043	1-101-005-00	CERAMIC 0.022MF 50V
C044	1-161-327-00	CERAMIC 0.0033MF 20% 16V
C046	1-161-379-00	CERAMIC 0.01MF 20% 16V
C101	1-101-005-00	CERAMIC 0.022MF 50V
C102	1-101-005-00	CERAMIC 0.022MF 50V
C103	1-124-791-11	ELECT 1MF 20% 50V
C104	1-123-875-91	ELECT 10MF 20% 50V
C105	1-162-211-31	CERAMIC 33PF 5% 50V
C106	1-101-005-00	CERAMIC 0.022MF 50V
C107	1-123-875-91	ELECT 10MF 20% 50V
C108	1-161-379-00	CERAMIC 0.01MF 20% 16V
C110	1-101-005-00	CERAMIC 0.022MF 50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C111	1-124-927-11	ELECT 4.7MF 20% 50V
C112	1-123-382-00	ELECT 3.3MF 20% 50V
C113	1-123-382-00	ELECT 3.3MF 20% 50V
C114	1-161-379-00	CERAMIC 0.01MF 20% 16V
C115	1-123-382-00	ELECT 3.3MF 20% 50V
C116	1-101-005-00	CERAMIC 0.022MF 50V
C117	1-130-489-00	MYLAR 0.033MF 5% 50V
C201	1-124-477-11	ELECT 47MF 20% 16V
C202	1-124-791-11	ELECT 1MF 20% 50V
C203	1-124-902-00	ELECT 0.47MF 20% 50V
C204	1-124-791-11	ELECT 1MF 20% 50V
C205	1-124-791-11	ELECT 1MF 20% 50V
C206	1-161-494-00	CERAMIC 0.022MF 30% 25V
C207	1-123-875-91	ELECT 10MF 20% 50V
C208	1-123-875-91	ELECT 10MF 20% 50V
C209	1-102-074-00	CERAMIC 0.001MF 10% 50V
C210	1-102-074-00	CERAMIC 0.001MF 10% 50V
C211	1-124-611-00	ELECT 1MF 20% 50V
C212	1-124-611-00	ELECT 1MF 20% 50V
C213	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C214	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C215	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C216	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C217	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C218	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C301	1-126-211-51	ELECT 33000MF 5.5V
C303	1-102-959-00	CERAMIC 22PF 5% 50V
C304	1-102-959-00	CERAMIC 22PF 5% 50V
C305	1-124-791-11	ELECT 1MF 20% 50V
C306	1-123-875-91	ELECT 10MF 20% 50V
C307	1-124-463-00	ELECT 0.1MF 20% 50V
C308	1-124-477-11	ELECT 47MF 20% 16V
C309	1-101-005-00	CERAMIC 0.022MF 50V
C310	1-123-875-91	ELECT 10MF 20% 50V
C311	1-136-171-00	FILM 0.33MF 5% 50V
C312	1-130-487-00	MYLAR 0.022MF 5% 50V
C313	1-124-252-00	ELECT 0.33MF 20% 50V
C314	1-136-171-00	FILM 0.33MF 5% 50V
C315	1-130-487-00	MYLAR 0.022MF 5% 50V
C316	1-124-252-00	ELECT 0.33MF 20% 50V
C318	1-161-379-00	CERAMIC 0.01MF 20% 16V
C319	1-161-379-00	CERAMIC 0.01MF 20% 16V
C320	1-161-379-00	CERAMIC 0.01MF 20% 16V
C501	1-161-494-00	CERAMIC 0.022MF 30% 25V
C502	1-161-494-00	CERAMIC 0.022MF 30% 25V

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C503	1-162-199-31	CERAMIC 10PF 5% 50V
C504	1-161-494-00	CERAMIC 0.022MF 30% 25V
C505	1-161-494-00	CERAMIC 0.022MF 30% 25V
C506	1-161-494-00	CERAMIC 0.022MF 30% 25V
CF101	1-527-968-00	FILTER, CERAMIC
CF102	1-527-968-00	FILTER, CERAMIC
CF104	1-527-981-00	FILTER, CERAMIC
CNJ201	*1-559-205-11	CORD (WITH CONNECTOR) 5P
CNP001	*1-560-060-00	PIN, CONNECTOR 2P
CNP002	*1-564-337-00	PIN, CONNECTOR 3P
CNP101	*1-560-060-00	PIN, CONNECTOR 2P
CNP201	*1-564-336-00	PIN, CONNECTOR 2P
CNP301	*1-560-063-00	PIN, CONNECTOR 5P
CNP302	*1-560-064-00	PIN, CONNECTOR 6P
CNP303	*1-564-341-11	PIN, CONNECTOR 7P
CT021	1-141-227-00	CAP, CERAMIC TRIMMER
CT022	1-141-304-21	TRIMMER, CERAMIC
CT023	1-141-227-00	CAP, CERAMIC TRIMMER
CT024	1-141-227-00	CAP, CERAMIC TRIMMER
D001	8-719-918-45	DIODE KV1310
D002	8-719-940-76	DIODE 1SS132
D003	8-719-918-45	DIODE KV1310
D004	8-719-918-45	DIODE KV1310
D021	8-719-902-79	DIODE KV1236Z
D022	8-719-902-79	DIODE KV1236Z
D101	8-719-940-76	DIODE 1SS132
D201	8-719-940-76	DIODE 1SS132
D202	8-719-303-18	DIODE SEL1210W
D301	8-719-910-63	DIODE HZ6C2L
D302	8-719-940-76	DIODE 1SS132
D304	8-719-940-76	DIODE 1SS132
D305	8-719-940-76	DIODE 1SS132
D306	8-719-940-76	DIODE 1SS132
D307	8-719-940-76	DIODE 1SS132
D308	8-719-940-76	DIODE 1SS132
D309	8-719-940-76	DIODE 1SS132
D310	8-719-940-76	DIODE 1SS132
D311	8-719-940-76	DIODE 1SS132
D312	8-719-940-76	DIODE 1SS132
D313	8-719-940-76	DIODE 1SS132
D314	8-719-940-76	DIODE 1SS132
D315	8-719-940-76	DIODE 1SS132
D317	8-719-940-76	DIODE 1SS132
D319	8-719-940-76	DIODE 1SS132
FL101	1-235-126-00	ENCAPSULATED COMPONENT

ELECTRICAL PARTS

Ref.No.	Part No.	Description
IC101	8-759-801-81	IC LA1265
IC201	8-759-801-80	IC LA3401
IC301	8-759-207-45	IC TC9302AF-018
IC302	8-759-202-63	IC TC9172P
IFT101	1-404-659-11	COIL, DISCRIMINATOR
IFT102	1-404-713-11	TRANSFORMER, IF
L001	*1-422-336-11	COIL, AIR-CORE
L002	*1-422-040-00	COIL, AIR-CORE
L003	*1-422-081-00	COIL (WITH CORE)
L004	*1-422-039-00	COIL, AIR-CORE
L005	*1-459-396-00	COIL (WITH CORE)
L022	1-402-151-11	ANTENNA, FERRITE-ROD (LW/MW)
L023	1-406-089-11	COIL (OSC)
L025	1-406-207-11	COIL, LW (OSC)
L101	1-408-930-00	MICRO INDUCTOR 33MMH
L201	1-408-924-00	MICRO INDUCTOR 10MMH
L202	1-408-924-00	MICRO INDUCTOR 10MMH
LCD1	1-807-453-41	DISPLAY PANEL, LIQUID CRYSTAL
PL001	1-518-527-51	LAMP, PILOT
PL002	1-518-527-51	LAMP, PILOT
Q001	8-729-304-38	TRANSISTOR 2SC3391
Q002	8-729-304-38	TRANSISTOR 2SC3391
Q003	8-729-672-42	TRANSISTOR 2SC2724
Q004	8-729-672-42	TRANSISTOR 2SC2724
Q021	8-729-159-01	TRANSISTOR 2SA1348
Q022	8-729-115-33	TRANSISTOR BN1F4Z
Q023	8-729-159-01	TRANSISTOR 2SA1348
Q024	8-729-115-33	TRANSISTOR BN1F4Z
Q028	8-729-115-93	TRANSISTOR BA1F4Z
Q029	8-729-115-79	TRANSISTOR BA1A4M
Q101	8-729-672-42	TRANSISTOR 2SC2724
Q201	8-729-115-79	TRANSISTOR BA1A4M
Q202	8-729-115-79	TRANSISTOR BA1A4M
Q301	8-729-600-27	TRANSISTOR 2SC634SP
Q302	8-729-600-27	TRANSISTOR 2SC634SP
Q303	8-729-115-79	TRANSISTOR BA1A4M
Q304	8-729-159-01	TRANSISTOR 2SA1348
Q305	8-729-159-01	TRANSISTOR 2SA1348
Q306	8-729-115-79	TRANSISTOR BA1A4M
Q307	8-729-115-79	TRANSISTOR BA1A4M
Q309	8-729-201-56	TRANSISTOR 2SK246GR2
Q310	8-729-600-27	TRANSISTOR 2SC634SP
Q311	8-729-201-56	TRANSISTOR 2SK246GR2
Q312	8-729-600-27	TRANSISTOR 2SC634SP

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R001	1-249-441-11	CARBON	100K	5%	1/6W
R002	1-215-491-00	CARBON	820K	5%	1/6W
R003	1-249-401-11	CARBON	47	5%	1/6W
R004	1-249-401-11	CARBON	47	5%	1/6W
R005	1-249-441-11	CARBON	100K	5%	1/6W
R006	1-215-491-00	CARBON	820K	5%	1/6W
R007	1-249-411-11	CARBON	330	5%	1/6W
R008	1-249-405-11	CARBON	100	5%	1/6W
R009	1-249-429-11	CARBON	10K	5%	1/6W
R010	1-249-429-11	CARBON	10K	5%	1/6W
R011	1-249-422-11	CARBON	2.7K	5%	1/6W
R012	1-249-431-11	CARBON	15K	5%	1/6W
R013	1-215-483-00	CARBON	390K	5%	1/6W
R014	1-249-405-11	CARBON	100	5%	1/6W
R021	1-249-429-11	CARBON	10K	5%	1/6W
R024	1-249-429-11	CARBON	10K	5%	1/6W
R025	1-249-429-11	CARBON	10K	5%	1/6W
R029	1-249-429-11	CARBON	10K	5%	1/6W
R030	1-249-429-11	CARBON	10K	5%	1/6W
R036	1-249-411-11	CARBON	330	5%	1/6W
R037	1-249-437-11	CARBON	47K	5%	1/6W
R038	1-215-493-00	CARBON	1M	5%	1/6W
R101	1-215-491-00	CARBON	820K	5%	1/6W
R102	1-249-411-11	CARBON	330	5%	1/6W
R103	1-249-434-11	CARBON	27K	5%	1/6W
R104	1-249-423-11	CARBON	3.3K	5%	1/6W
R105	1-247-849-00	CARBON	5.6K	5%	1/6W
R106	1-249-404-00	CARBON	82	5%	1/6W
R107	1-249-429-11	CARBON	10K	5%	1/6W
R108	1-249-429-11	CARBON	10K	5%	1/6W
R109	1-249-413-11	CARBON	470	5%	1/6W
R110	1-249-423-11	CARBON	3.3K	5%	1/6W
R201	1-249-423-11	CARBON	3.3K	5%	1/6W
R202	1-249-437-11	CARBON	47K	5%	1/6W
R203	1-249-437-11	CARBON	47K	5%	1/6W
R204	1-249-417-11	CARBON	1K	5%	1/6W
R205	1-249-437-11	CARBON	47K	5%	1/6W
R206	1-249-437-11	CARBON	47K	5%	1/6W
R207	1-249-437-11	CARBON	47K	5%	1/6W
R208	1-249-437-11	CARBON	47K	5%	1/6W
R209	1-249-419-11	CARBON	1.5K	5%	1/6W
R210	1-249-419-11	CARBON	1.5K	5%	1/6W
R211	1-249-429-11	CARBON	10K	5%	1/6W
R212	1-249-429-11	CARBON	10K	5%	1/6W
R220	1-249-452-11	CARBON	2.7	5%	1/4W
R302	1-249-419-11	CARBON	1.5K	5%	1/6W
R303	1-249-435-11	CARBON	33K	5%	1/6W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R304	1-249-441-11	CARBON	100K	5%	1/6W
R305	1-249-435-11	CARBON	33K	5%	1/6W
R306	1-249-435-11	CARBON	33K	5%	1/6W
R307	1-249-423-11	CARBON	3.3K	5%	1/6W
R309	1-249-417-11	CARBON	1K	5%	1/6W
R310	1-249-405-11	CARBON	100	5%	1/6W
R311	1-249-405-11	CARBON	100	5%	1/6W
R312	1-249-437-11	CARBON	47K	5%	1/6W
R313	1-249-414-11	CARBON	560	5%	1/6W
R314	1-249-421-11	CARBON	2.2K	5%	1/6W
R315	1-249-435-11	CARBON	33K	5%	1/6W
R316	1-249-416-11	CARBON	820	5%	1/6W
R317	1-249-410-11	CARBON	270	5%	1/6W
R318	1-249-425-11	CARBON	4.7K	5%	1/6W
R319	1-249-425-11	CARBON	4.7K	5%	1/6W
R320	1-249-437-11	CARBON	47K	5%	1/6W
R321	1-247-885-00	CARBON	180K	5%	1/6W
R322	1-249-414-11	CARBON	560	5%	1/6W
R323	1-249-416-11	CARBON	820	5%	1/6W
R324	1-249-410-11	CARBON	270	5%	1/6W
R325	1-249-421-11	CARBON	2.2K	5%	1/6W
R326	1-249-425-11	CARBON	4.7K	5%	1/6W
R327	1-249-425-11	CARBON	4.7K	5%	1/6W
ROD1	1-501-270-00	ANTENNA, TELESCOPIC			
RT101	1-228-996-00	RES, ADJ, CARBON 47K			
RT102	1-230-629-11	RES, ADJ, CARBON 3.3K			
S301	1-554-303-21	SWITCH, KEY BOARD (1)			
S302	1-554-303-21	SWITCH, KEY BOARD (2)			
S303	1-554-303-21	SWITCH, KEY BOARD (3)			
S304	1-554-303-21	SWITCH, KEY BOARD (4)			
S305	1-554-303-21	SWITCH, KEY BOARD (5)			
S306	1-554-303-21	SWITCH, KEY BOARD (6)			
S307	1-554-303-21	SWITCH, KEY BOARD (7)			
S308	1-554-303-21	SWITCH, KEY BOARD (8)			
S309	1-554-303-21	SWITCH, KEY BOARD (9)			
S310	1-554-303-21	SWITCH, KEY BOARD (MEMORY)			
S311	1-554-303-21	SWITCH, KEY BOARD (0)			
S312	1-554-303-21	SWITCH, KEY BOARD (ENTER)			
S313	1-570-876-11	SWITCH, KEY BOARD (MEMORY SCAN)			
S314	1-570-876-11	SWITCH, KEY BOARD (+)			
S315	1-570-876-11	SWITCH, KEY BOARD (-)			
S316	1-570-876-11	SWITCH, KEY BOARD (BAND)			
S317	1-570-876-11	SWITCH, KEY BOARD (STEREO MUTING)			
TB001	1-536-708-00	TERMINAL BOARD, PUSH 4P			
X201	1-567-250-11	OSCILLATOR, CERAMIC (456kHz)			
X301	1-567-736-11	VIBRATOR, CRYSTAL (7.2MHz)			

FH-204
FH-209W

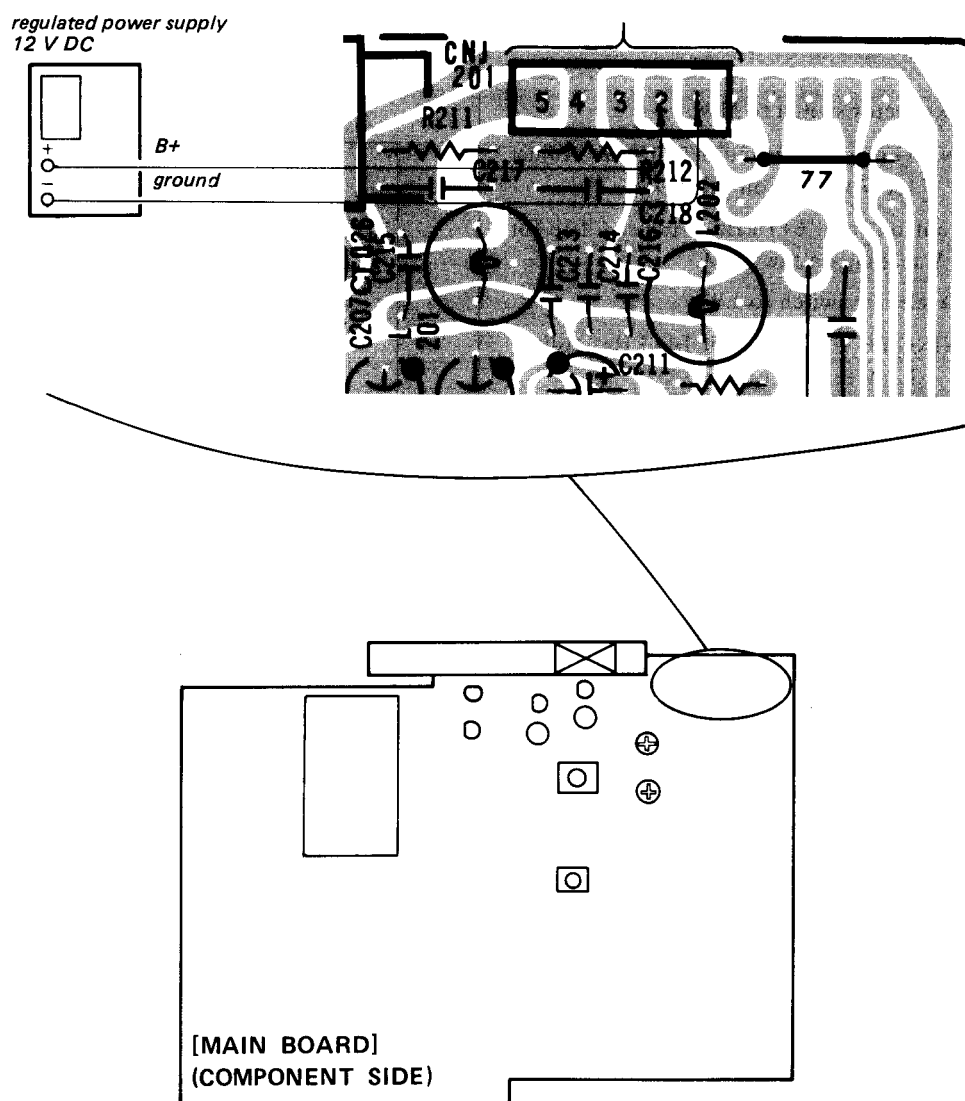
FM STEREO/FM-AM TUNER (ST-209)

G-AEP Model

REPAIRING PRECAUTION

[To apply B+ voltage]

The power of this unit is fed from other unit.
When the unit operates individually, connect the regulated power supply to the point as shown in the below fig.



SECTION 1

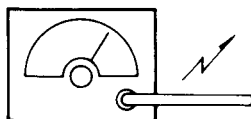
ELECTRICAL ADJUSTMENTS

AM SECTION

Setting:

BAND selector switch: MW or LW

AM rf signal generator



Put the lead-wire antenna close to the set.

30% amplitude modulation by 400 Hz signal

- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

LW TRACKING ADJUSTMENT

Adjust for a maximum reading on VTVM.

270 kHz

162 kHz

CT23

L22

MW TRACKING ADJUSTMENT

Adjust for a maximum reading on VTVM.

1,404 kHz

603 kHz

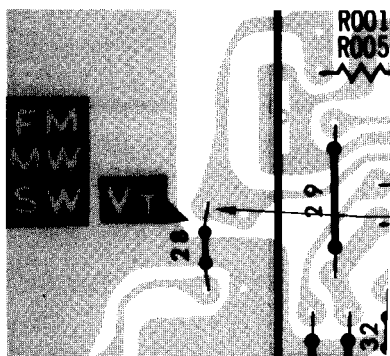
CT21

L22

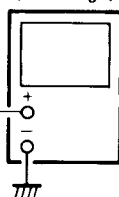
MW/LW OSC Voltage Adjustment

Procedure:

- Set BAND selector switch to MW.
- Push TUNING (+, -) button for 522 kHz. Adjust L23 for 1 – 1.1 V reading on the VOM.
- Push the button for 1,611 kHz. Adjust CT22 for 8.0 – 8.5 V reading on the VOM.
- Set BAND selector switch to LW.
- Push TUNING (+, -) button for 144 kHz. Adjust L25 for 1 – 1.1 V reading on the VOM.
- Push the button for 288 kHz. Adjust CT24 for 8.0 – 8.5 V reading on the VOM.



VOM (DC range)



CT22

L23

CT24

L25

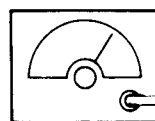
AM Tuned Indication Lighting Level Adjustment

BAND select switch: MW

Procedure:

AM rf signal generator

loop antenna



set

Carrier frequency: 999 kHz
Modulation: 400 Hz, 30% modulation

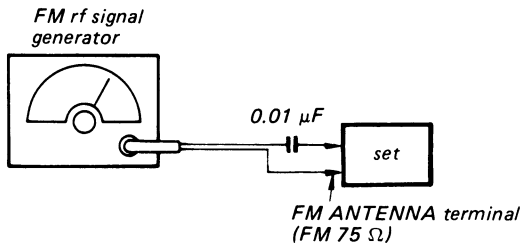
- Set loop antenna so that the antenna input level becomes 0.7 mV/m (57 dB).
- Adjust RT102 so that the LED lights up.

FM SECTION

Setting:
BAND selector switch FM

FM Muting Level Adjustment

Setting:
STEREO MUTING switch ON



Carrier frequency: 98 MHz
Modulation: 1 kHz, 75 kHz deviation
Output level: 22.4 μ V (27 dB)

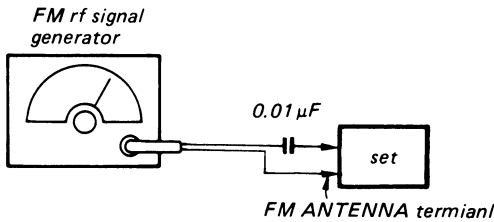
Procedure:

1. Check that "MUTING" is flashed on the indicator.
2. Push the TUNING (+, -) button for 98 MHz.
3. Adjust RT101, then check that "TUNED" is flashed on the indicator.

Note: FM discriminator alignment should be mode after FM tracking adjustment.

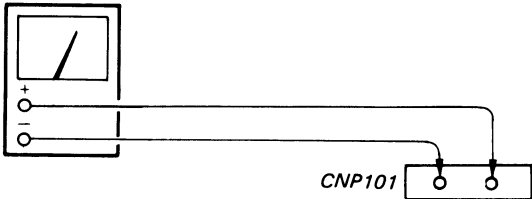
FM Discriminator Alignment (NULL Check)

Setting:



Carrier frequency: 98 MHz
Modulation: 1 kHz, 75 kHz deviation
Output level: 1 mV (60 dB)

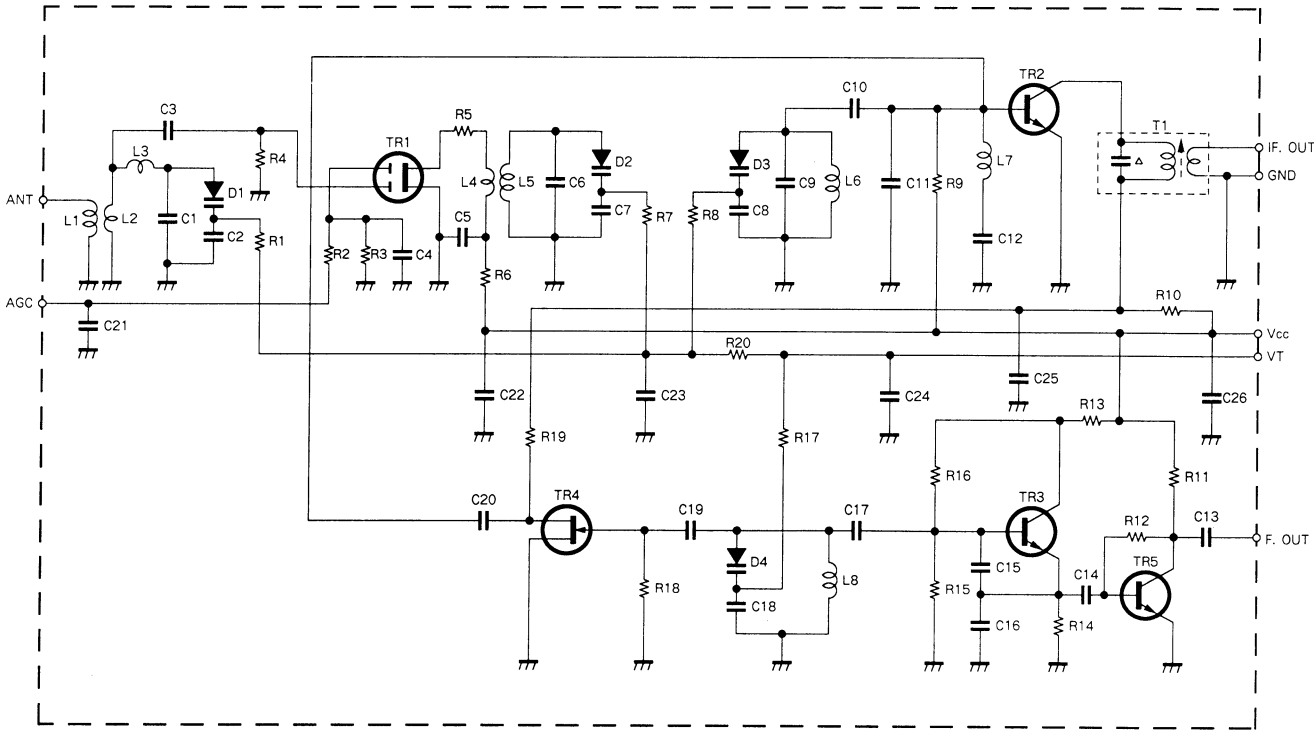
VOM
(DC range)



Procedure:

1. Push the TUNING (+, -) button for 98 MHz.
2. Adjust IFT101 for 0 V reading on the VOM.

FM FRONT END (FE1) SCHEMATIC DIAGRAM



SECTION 2
DIAGRAMS

2-1. MOUNTING DIAGRAM

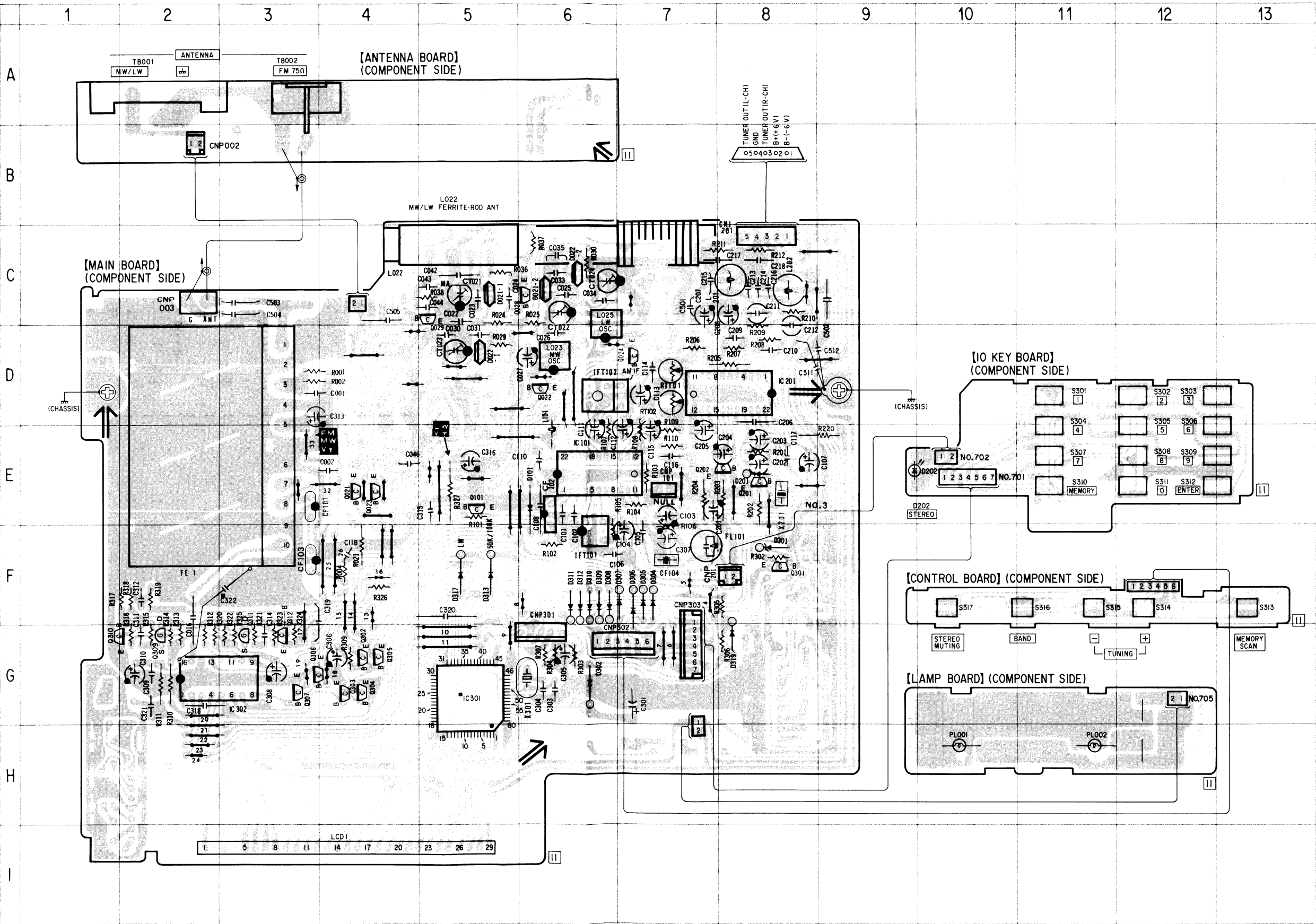
• See page ST-9 for Semiconductor Lead Layouts.

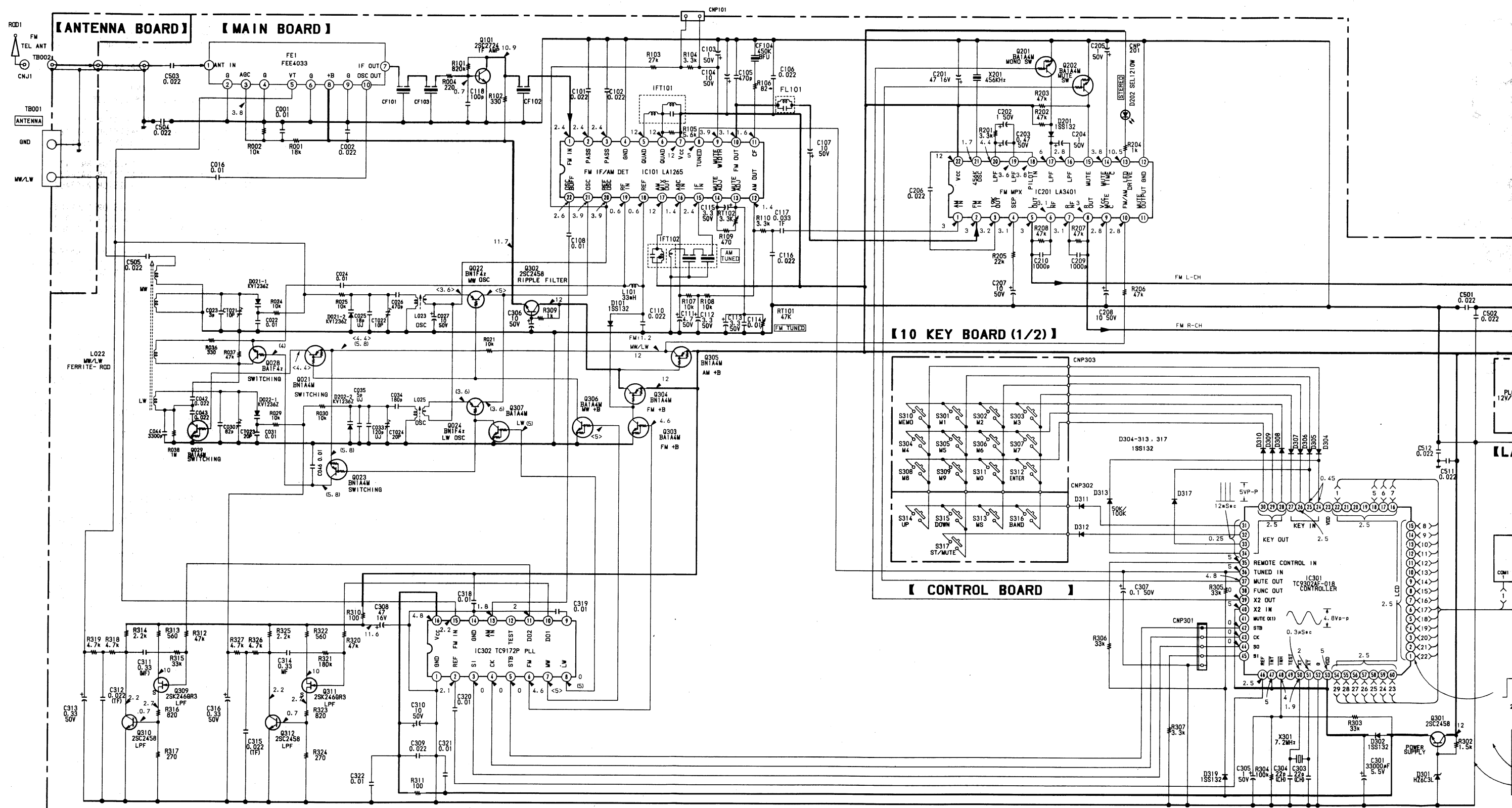
• SMICONDUCTOR
LOCATION

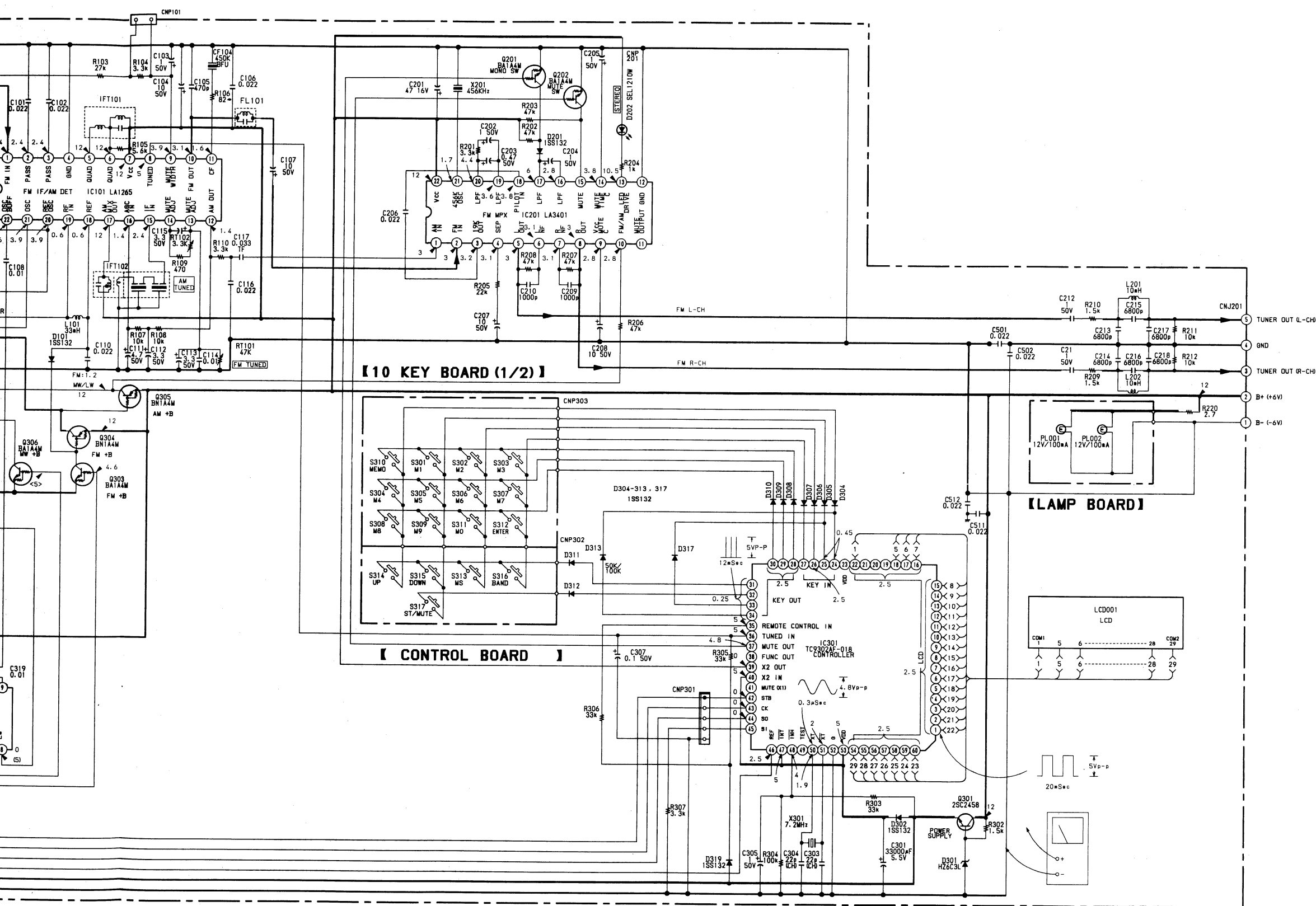
Ref. No.	Location
D021-1	C-5
D021-2	C-6
D022-1	D-5
D022-2	C-6
D101	E-6
D201	E-8
D202	E-9
D301	F-8
D302	G-6
D304	F-7
D305	F-7
D306	F-7
D307	F-7
D308	F-6
D309	F-6
D310	F-6
D311	F-6
D312	F-6
D313	F-5
D314	F-5
D315	F-5
D317	F-5
D319	G-8
IC101	E-6
IC201	D-8
IC301	G-5
IC302	G-2
Q021	E-4
Q022	D-6
Q023	E-4
Q024	D-7
Q028	C-6
Q029	D-5
Q101	E-4
Q201	E-8
Q202	E-8
Q301	F-8
Q302	G-4
Q303	G-4
Q304	G-4
Q305	G-4
Q306	G-3
Q307	G-3
Q309	G-2
Q310	G-1
Q311	G-3
Q312	G-3

Note:





• ■ : part mounted on
the conductor side.







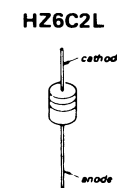
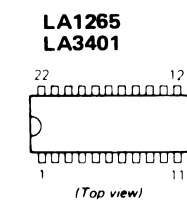
Note:

- All capacitors are in μF unless otherwise noted. pF : $\mu\mu\text{F}$. 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
-  : signal path.
-  : B+ bus.
-  : B- bus.
-  : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM (50 $\text{k}\Omega/\text{V}$).
no mark: FM mode
< >: MW mode
(): LW mode

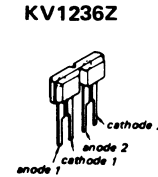
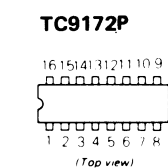
- Switch

Ref. No.	Switch	Position
S301	1	
S302	2	
S303	3	
S304	4	
S305	5	
S306	6	
S307	7	
S308	8	
S309	9	
S310	MEMORY	
S311	0	
S312	ENTER	
S313	MEMORY SCAN	
S314	+	
S315	—	
S316	BAND	
S317	STEREO MUTING	

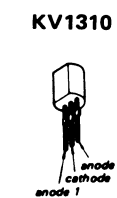
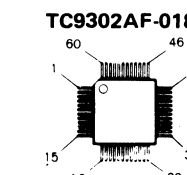
- **Semiconductor Lead Layouts**



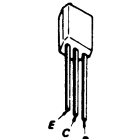
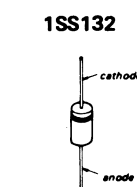
2SA1348
2SC634SP
2SC2724
2SC3402
BA1A4M
BA1F4Z
BN1F4Z



2SK246GR2



2SC3391



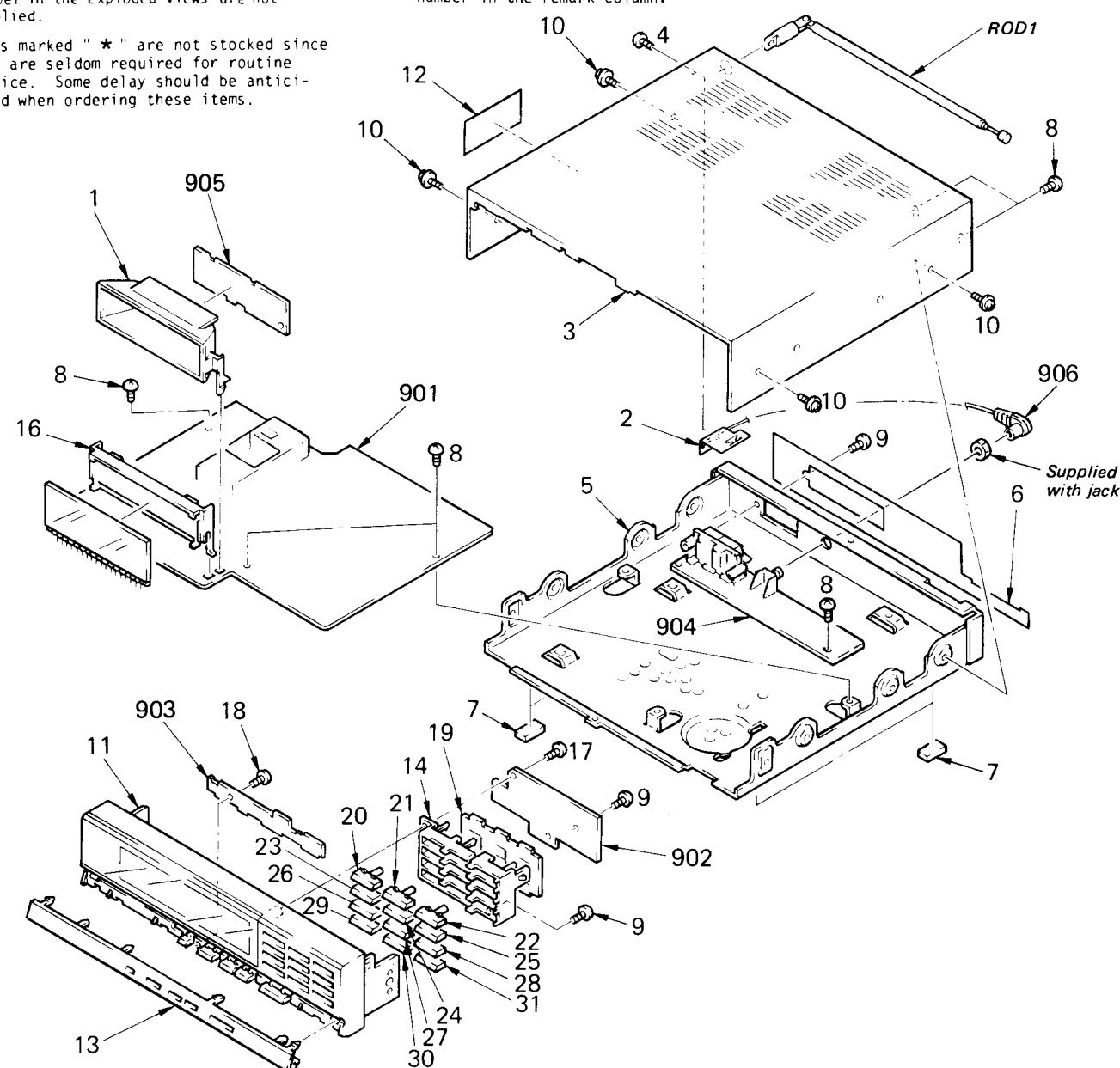
SECTION 3
EXPLODED VIEW AND PARTS LIST

NOTE:

The mechanical parts with no reference number in the exploded views are not supplied.

Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The construction parts of an assembled part are indicated with a collation number in the remark column.



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	*4-917-275-01	HOUSE, LAMP		20	4-920-176-01	BUTTON (1)	
2	*4-919-611-01	BRACKET, ANT		21	4-920-176-11	BUTTON (2)	
3	4-920-137-01	CASE		22	4-920-176-21	BUTTON (3)	
4	7-682-547-09	SCREW +B 3X6		23	4-920-176-31	BUTTON (4)	
5	*4-919-617-11	CHASSIS		24	4-920-176-41	BUTTON (5)	
6	*4-919-606-11	COVER, REAR		25	4-920-176-51	BUTTON (6)	
7	4-919-608-01	FOOT		26	4-920-176-61	BUTTON (7)	
8	7-682-147-01	SCREW +BVTT 3X6 (S)		27	4-920-176-71	BUTTON (8)	
9	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S		28	4-920-176-81	BUTTON (9)	
10	4-886-821-21	SCREW, M3 CASE STOPPER		29	4-920-175-01	BUTTON (MEMORY)	
11	X-4919-627-1	PANEL ASSY		30	4-920-176-91	BUTTON (0)	
12	4-919-666-01	LABEL, MODEL NUMBER (AE4)		31	4-920-175-11	BUTTON (ENTERO)	
13	4-919-616-02	PANEL, CONTROL		901	*A-4351-587-A	MOUNTED PCB, TUNER	
14	*4-919-614-01	RETAINER, BUTTON		902	*1-622-320-11	PC BOARD, 10 KEY	
16	*4-909-633-01	ILLUMINATOR		903	*1-622-321-11	PC BOARD, CONTROL	
17	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S		904	*1-622-322-11	PC BOARD, ANTENNA	
18	7-685-133-19	SCREW +P 2.6X6 TYPE2 SLIT		905	*1-622-323-11	PC BOARD, LAMP	
19	*4-919-607-01	SPACER		906	*1-562-908-11	CONNECTOR, FEMALE (NO SHIELD)	
				ROD1	1-501-270-00	ANTENNA, TELESCOPIC	

SECTION 4
ELECTRICAL PARTS LIST

NOTE:

Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF: μ F, PF: μ P.

RESISTORS

All resistors are in ohms.

F: nonflammable

COILS

MMH: mH, UH: μ H

SEMICONDUCTORS

In each case, U: μ , for example:

UA...: μ A..., UPA...: μ PA..., UPC...: μ PC,

UPD...: μ PD...

ELECTRICAL PARTS						
Ref.No.	Part No.	Description				
901	*A-4351-587-A	MOUNTED PCB, TUNER				
902	*1-622-320-11	PC BOARD, 10 KEY				
903	*1-622-321-11	PC BOARD, CONTROL				
904	*1-622-322-11	PC BOARD, ANTENNA				
905	*1-622-323-11	PC BOARD, LAMP				
906	*1-562-908-11	CONNECTOR, FEMALE (NO SHIELD)				
C001	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C002	1-101-005-00	CERAMIC	0.022MF		50V	
C016	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C022	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C023	1-102-936-00	CERAMIC	3PF	0.25PF	50V	
C024	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C025	1-102-893-00	CERAMIC	18PF	5%	50V	
C026	1-130-014-00	FILM	470PF	5%	50V	
C027	1-123-875-91	ELECT	10MF	20%	50V	
C030	1-102-971-00	CERAMIC	82PF	5%	50V	
C031	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C033	1-102-816-00	CERAMIC	120PF	5%	50V	
C034	1-130-047-00	FILM	180PF	5%	50V	
C035	1-102-942-00	CERAMIC	5PF	0.5PF	50V	
C042	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C043	1-101-005-00	CERAMIC	0.022MF		50V	
C044	1-161-327-00	CERAMIC	0.0033MF	20%	16V	
C046	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C101	1-101-005-00	CERAMIC	0.022MF		50V	
C102	1-101-005-00	CERAMIC	0.022MF		50V	
C103	1-124-499-11	ELECT	1MF	20%	50V	
C104	1-123-875-91	ELECT	10MF	20%	50V	
C105	1-162-290-31	CERAMIC	470PF	10%	50V	
C106	1-101-005-00	CERAMIC	0.022MF		50V	
C107	1-123-875-91	ELECT	10MF	20%	50V	
C108	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C110	1-101-005-00	CERAMIC	0.022MF		50V	
C111	1-124-927-11	ELECT	4.7MF	20%	50V	
C112	1-123-382-00	ELECT	3.3MF	20%	50V	
C113	1-123-382-00	ELECT	3.3MF	20%	50V	
C114	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C115	1-123-382-00	ELECT	3.3MF	20%	50V	
C116	1-101-005-00	CERAMIC	0.022MF		50V	
C117	1-130-489-00	MYLAR	0.033MF	5%	50V	
C118	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C201	1-124-477-11	ELECT	47MF	20%	16V	
C202	1-124-499-11	ELECT	1MF	20%	50V	
C203	1-124-902-00	ELECT	0.47MF	20%	50V	
C204	1-124-499-11	ELECT	1MF	20%	50V	
C205	1-124-499-11	ELECT	1MF	20%	50V	

ELECTRICAL PARTS						
Ref.No.	Part No.	Description				
C206	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C207	1-123-875-91	ELECT	10MF	20%	50V	
C208	1-123-875-91	ELECT	10MF	20%	50V	
C209	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C210	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C211	1-124-611-00	ELECT	1MF	20%	50V	
C212	1-124-611-00	ELECT	1MF	20%	50V	
C213	1-161-329-00	CERAMIC	0.0068MF	20%	16V	
C214	1-161-329-00	CERAMIC	0.0068MF	20%	16V	
C215	1-161-329-00	CERAMIC	0.0068MF	20%	16V	
C216	1-161-329-00	CERAMIC	0.0068MF	20%	16V	
C217	1-161-329-00	CERAMIC	0.0068MF	20%	16V	
C218	1-161-329-00	CERAMIC	0.0068MF	20%	16V	
C301	1-126-211-51	ELECT	33000MF		5.5V	
C303	1-102-959-00	CERAMIC	22PF	5%	50V	
C304	1-102-959-00	CERAMIC	22PF	5%	50V	
C305	1-124-499-11	ELECT	1MF	20%	50V	
C306	1-123-875-91	ELECT	10MF	20%	50V	
C307	1-124-463-00	ELECT	0.1MF	20%	50V	
C308	1-124-477-11	ELECT	47MF	20%	16V	
C309	1-101-005-00	CERAMIC	0.022MF		50V	
C310	1-123-875-91	ELECT	10MF	20%	50V	
C311	1-136-171-00	FILM	0.33MF	5%	50V	
C312	1-130-487-00	MYLAR	0.022MF	5%	50V	
C313	1-124-252-00	ELECT	0.33MF	20%	50V	
C314	1-136-171-00	FILM	0.33MF	5%	50V	
C315	1-130-487-00	MYLAR	0.022MF	5%	50V	
C316	1-124-252-00	ELECT	0.33MF	20%	50V	
C318	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C319	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C320	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C321	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C322	1-161-379-00	CERAMIC	0.01MF	20%	16V	
C501	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C502	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C503	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C504	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C505	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C511	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C512	1-161-494-00	CERAMIC	0.022MF	30%	25V	
CF101	1-527-968-11	FILTER, CERAMIC				
CF102	1-527-968-11	FILTER, CERAMIC				
CF103	1-527-968-11	FILTER, CERAMIC				
CF104	1-527-981-00	FILTER, CERAMIC				
CNJ201	*1-559-205-11	CORD (WITH CONNECTOR) 5P				

SECTION 4

ELECTRICAL PARTS LIST

NOTE:

Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF:μF, PF:μμF.

RESISTORS

All resistors are in ohms.
F : nonflammable

COILS

MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:

UA...: μA..., UPA...: μPA..., UPC...: μPC,
UPD...: μPD...

ELECTRICAL PARTS

Ref.No.	Part No.	Description
CNP002*	1-564-336-00	PIN, CONNECTOR 2P
CNP003*	1-535-115-00	TERMINAL
CNP101*	1-560-060-00	PIN, CONNECTOR 2P
CNP201*	1-564-336-00	PIN, CONNECTOR 2P
CNP301*	1-560-063-00	PIN, CONNECTOR 5P
CNP302*	1-560-064-00	PIN, CONNECTOR 6P
CNP303*	1-564-341-11	PIN, CONNECTOR 7P
CT021	1-141-227-00	CAP, CERAMIC TRIMMER
CT022	1-141-304-21	TRIMMER, CERAMIC
CT023	1-141-227-00	CAP, CERAMIC TRIMMER
CT024	1-141-227-00	CAP, CERAMIC TRIMMER
D021	8-719-902-79	DIODE KV1236Z
D022	8-719-902-79	DIODE KV1236Z
D101	8-719-940-76	DIODE 1SS132
D201	8-719-940-76	DIODE 1SS132
D202	8-719-303-13	DIODE SEL1210W
D301	8-719-910-63	DIODE HZ6C2L
D302	8-719-940-76	DIODE 1SS132
D304	8-719-940-76	DIODE 1SS132
D305	8-719-940-76	DIODE 1SS132
D306	8-719-940-76	DIODE 1SS132
D307	8-719-940-76	DIODE 1SS132
D308	8-719-940-76	DIODE 1SS132
D309	8-719-940-76	DIODE 1SS132
D310	8-719-940-76	DIODE 1SS132
D311	8-719-940-76	DIODE 1SS132
D312	8-719-940-76	DIODE 1SS132
D313	8-719-940-76	DIODE 1SS132
D314	8-719-940-76	DIODE 1SS132
D315	8-719-940-76	DIODE 1SS132
D317	8-719-940-76	DIODE 1SS132
D319	8-719-940-76	DIODE 1SS132
FE1	1-463-857-11	FRONT END (FM)
FL101	1-235-126-00	ENCAPSULATED COMPONENT
IC101	8-759-801-81	IC LA1265
IC201	8-759-801-80	IC LA3401
IC301	8-759-207-45	IC TC9302AF-018
IC302	8-759-202-63	IC TC9172P
IFT101	1-404-659-11	COIL, DISCRIMINATOR
IFT102	1-404-713-11	TRANSFORMER, IF
L022	1-402-151-11	ANTENNA, FERRITE-ROD (LW/MW)
L023	1-406-089-11	COIL (OSC)
L025	1-406-207-11	COIL, LW (OSC)

ELECTRICAL PARTS

Ref.No.	Part No.	Description
L101	1-408-930-00	MICRO INDUCTOR 33MMH
L201	1-408-924-00	MICRO INDUCTOR 10MMH
L202	1-408-924-00	MICRO INDUCTOR 10MMH
LC01	1-807-453-41	DISPLAY PANEL, LIQUID CRYSTAL
PL001	1-518-527-51	LAMP, PILOT
PL002	1-518-527-51	LAMP, PILOT
Q021	9-986-159-01	TRANSISTOR 2SA1348
Q022	8-729-115-33	TRANSISTOR BN1F4Z
Q023	9-986-159-01	TRANSISTOR 2SA1348
Q024	8-729-115-33	TRANSISTOR BN1F4Z
Q028	8-729-115-93	TRANSISTOR BA1F4Z
Q029	8-729-806-28	TRANSISTOR 2SC3402
Q101	8-729-672-42	TRANSISTOR 2SC2724
Q201	8-729-806-28	TRANSISTOR 2SC3402
Q202	8-729-806-28	TRANSISTOR 2SC3402
Q301	8-729-600-27	TRANSISTOR 2SC634SP
Q302	8-729-600-27	TRANSISTOR 2SC634PS
Q303	8-729-806-28	TRANSISTOR 2SC3402
Q304	9-986-159-01	TRANSISTOR 2SA1348
Q305	9-986-159-01	TRANSISTOR 2SA1348
Q306	8-729-806-28	TRANSISTOR 2SC3402
Q307	8-729-806-28	TRANSISTOR 2SC3402
Q309	8-729-201-56	TRANSISTOR 2SK246GR2
Q310	8-729-600-27	TRANSISTOR 2SC634SP
Q311	8-729-201-56	TRANSISTOR 2SK246GR2
Q312	8-729-600-27	TRANSISTOR 2SC634SP
R001	1-249-432-11	CARBON 18K 5% 1/4W
R002	1-249-429-11	CARBON 10K 5% 1/4W
R004	1-249-409-11	CARBON 220 5% 1/4W
R021	1-249-429-11	CARBON 10K 5% 1/4W
R024	1-249-429-11	CARBON 10K 5% 1/4W
R025	1-249-429-11	CARBON 10K 5% 1/4W
R029	1-249-429-11	CARBON 10K 5% 1/4W
R030	1-249-429-11	CARBON 10K 5% 1/4W
R036	1-249-411-11	CARBON 330 5% 1/4W
R037	1-249-437-11	CARBON 47K 5% 1/4W
R038	1-215-493-00	CARBON 1M 5% 1/4W
R101	1-215-491-00	CARBON 820K 5% 1/4W
R102	1-249-411-11	CARBON 330 5% 1/4W
R103	1-249-434-11	CARBON 27K 5% 1/4W
R104	1-249-423-11	CARBON 3.3K 5% 1/4W
R105	1-247-849-00	CARBON 5.6K 5% 1/4W
R106	1-249-404-00	CARBON 82 5% 1/4W
R107	1-249-429-11	CARBON 10K 5% 1/4W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
901	*A-4351-587-A	MOUNTED PCB, TUNER
902	*1-622-320-11	PC BOARD, 10 KEY
903	*1-622-321-11	PC BOARD, CONTROL
904	*1-622-322-11	PC BOARD, ANTENNA
905	*1-622-323-11	PC BOARD, LAMP
906	*1-562-908-11	CONNECTOR, FEMALE (NO SHIELD)
C001	1-161-379-00	CERAMIC 0.01MF 20% 16V
C002	1-101-005-00	CERAMIC 0.022MF 50V
C016	1-161-379-00	CERAMIC 0.01MF 20% 16V
C022	1-161-379-00	CERAMIC 0.01MF 20% 16V
C023	1-102-936-00	CERAMIC 3PF 0.25PF 50V
C024	1-161-379-00	CERAMIC 0.01MF 20% 16V
C025	1-102-893-00	CERAMIC 18PF 5% 50V
C026	1-130-014-00	FILM 470PF 5% 50V
C027	1-123-875-91	ELECT 10MF 20% 50V
C030	1-102-971-00	CERAMIC 82PF 5% 50V
C031	1-161-379-00	CERAMIC 0.01MF 20% 16V
C033	1-102-816-00	CERAMIC 120PF 5% 50V
C034	1-130-047-00	FILM 180PF 5% 50V
C035	1-102-942-00	CERAMIC 5PF 0.5PF 50V
C042	1-161-494-00	CERAMIC 0.022MF 30% 25V
C043	1-101-005-00	CERAMIC 0.022MF 50V
C044	1-161-327-00	CERAMIC 0.0033MF 20% 16V
C046	1-161-379-00	CERAMIC 0.01MF 20% 16V
C101	1-101-005-00	CERAMIC 0.022MF 50V
C102	1-101-005-00	CERAMIC 0.022MF 50V
C103	1-124-499-11	ELECT 1MF 20% 50V
C104	1-123-875-91	ELECT 10MF 20% 50V
C105	1-162-290-31	CERAMIC 470PF 10% 50V
C106	1-101-005-00	CERAMIC 0.022MF 50V
C107	1-123-875-91	ELECT 10MF 20% 50V
C108	1-161-379-00	CERAMIC 0.01MF 20% 16V
C110	1-101-005-00	CERAMIC 0.022MF 50V
C111	1-124-927-11	ELECT 4.7MF 20% 50V
C112	1-123-382-00	ELECT 3.3MF 20% 50V
C113	1-123-382-00	ELECT 3.3MF 20% 50V
C114	1-161-379-00	CERAMIC 0.01MF 20% 16V
C115	1-123-382-00	ELECT 3.3MF 20% 50V
C116	1-101-005-00	CERAMIC 0.022MF 50V
C117	1-130-489-00	MYLAR 0.033MF 5% 50V
C118	1-161-379-00	CERAMIC 0.01MF 20% 16V
C201	1-124-477-11	ELECT 47MF 20% 16V
C202	1-124-499-11	ELECT 1MF 20% 50V
C203	1-124-902-00	ELECT 0.47MF 20% 50V
C204	1-124-499-11	ELECT 1MF 20% 50V
C205	1-124-499-11	ELECT 1MF 20% 50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C206	1-161-494-00	CERAMIC 0.022MF 30% 25V
C207	1-123-875-91	ELECT 10MF 20% 50V
C208	1-123-875-91	ELECT 10MF 20% 50V
C209	1-102-074-00	CERAMIC 0.001MF 10% 50V
C210	1-102-074-00	CERAMIC 0.001MF 10% 50V
C211	1-124-611-00	ELECT 1MF 20% 50V
C212	1-124-611-00	ELECT 1MF 20% 50V
C213	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C214	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C215	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C216	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C217	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C218	1-161-329-00	CERAMIC 0.0068MF 20% 16V
C301	1-126-211-51	ELECT 33000MF 5.5V
C303	1-102-959-00	CERAMIC 22PF 5% 50V
C304	1-102-959-00	CERAMIC 22PF 5% 50V
C305	1-124-499-11	ELECT 1MF 20% 50V
C306	1-123-875-91	ELECT 10MF 20% 50V
C307	1-124-463-00	ELECT 0.1MF 20% 50V
C308	1-124-477-11	ELECT 47MF 20% 16V
C309	1-101-005-00	CERAMIC 0.022MF 50V
C310	1-123-875-91	ELECT 10MF 20% 50V
C311	1-136-171-00	FILM 0.33MF 5% 50V
C312	1-130-487-00	MYLAR 0.022MF 5% 50V
C313	1-124-252-00	ELECT 0.33MF 20% 50V
C314	1-136-171-00	FILM 0.33MF 5% 50V
C315	1-130-487-00	MYLAR 0.022MF 5% 50V
C316	1-124-252-00	ELECT 0.33MF 20% 50V
C318	1-161-379-00	CERAMIC 0.01MF 20% 16V
C319	1-161-379-00	CERAMIC 0.01MF 20% 16V
C320	1-161-379-00	CERAMIC 0.01MF 20% 16V
C321	1-161-379-00	CERAMIC 0.01MF 20% 16V
C322	1-161-379-00	CERAMIC 0.01MF 20% 16V
C501	1-161-494-00	CERAMIC 0.022MF 30% 25V
C502	1-161-494-00	CERAMIC 0.022MF 30% 25V
C503	1-161-494-00	CERAMIC 0.022MF 30% 25V
C504	1-161-494-00	CERAMIC 0.022MF 30% 25V
C505	1-161-494-00	CERAMIC 0.022MF 30% 25V
C511	1-161-494-00	CERAMIC 0.022MF 30% 25V
C512	1-161-494-00	CERAMIC 0.022MF 30% 25V
CF101	1-527-968-11	FILTER, CERAMIC
CF102	1-527-968-11	FILTER, CERAMIC
CF103	1-527-968-11	FILTER, CERAMIC
CF104	1-527-981-00	FILTER, CERAMIC
CNJ201*	1-559-205-11	CORD (WITH CONNECTOR) 5P

Remarks

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R108	1-249-429-11	CARBON	10K	5%	1/4W
R109	1-249-413-11	CARBON	470	5%	1/4W
R110	1-249-423-11	CARBON	3.3K	5%	1/4W
R201	1-249-423-11	CARBON	3.3K	5%	1/4W
R202	1-249-437-11	CARBON	47K	5%	1/4W
R203	1-249-437-11	CARBON	47K	5%	1/4W
R204	1-249-417-11	CARBON	1K	5%	1/4W
R205	1-249-434-11	CARBON	27K	5%	1/4W
R206	1-249-437-11	CARBON	47K	5%	1/4W
R207	1-249-437-11	CARBON	47K	5%	1/4W
R208	1-249-437-11	CARBON	47K	5%	1/4W
R209	1-249-419-11	CARBON	1.5K	5%	1/4W
R210	1-249-419-11	CARBON	1.5K	5%	1/4W
R220	1-249-452-11	CARBON	2.7	5%	1/4W
R302	1-249-419-11	CARBON	1.5K	5%	1/4W
R303	1-249-435-11	CARBON	33K	5%	1/4W
R304	1-249-441-11	CARBON	100K	5%	1/4W
R305	1-249-435-11	CARBON	33K	5%	1/4W
R306	1-249-435-11	CARBON	33K	5%	1/4W
R307	1-249-423-11	CARBON	3.3K	5%	1/4W
R309	1-249-417-11	CARBON	1K	5%	1/4W
R310	1-249-405-11	CARBON	100	5%	1/4W
R311	1-249-405-11	CARBON	100	5%	1/4W
R312	1-249-437-11	CARBON	47K	5%	1/4W
R313	1-249-414-11	CARBON	560	5%	1/4W
R314	1-249-421-11	CARBON	2.2K	5%	1/4W
R315	1-249-435-11	CARBON	33K	5%	1/4W
R316	1-249-416-11	CARBON	820	5%	1/4W
R317	1-249-410-11	CARBON	270	5%	1/4W
R318	1-249-425-11	CARBON	4.7K	5%	1/4W
R319	1-249-425-11	CARBON	4.7K	5%	1/4W
R320	1-249-437-11	CARBON	47K	5%	1/4W
R321	1-247-885-00	CARBON	180K	5%	1/4W
R322	1-249-414-11	CARBON	560	5%	1/4W
R323	1-249-416-11	CARBON	820	5%	1/4W
R324	1-249-410-11	CARBON	270	5%	1/4W
R325	1-249-421-11	CARBON	2.2K	5%	1/4W
R326	1-249-425-11	CARBON	4.7K	5%	1/4W
R327	1-249-425-11	CARBON	4.7K	5%	1/4W
ROD1	1-501-270-00	ANTENNA, TELESCOPIC			
RT101	1-228-996-00	RES, ADJ, CARBON 47K			
RT102	1-228-992-11	RES, ADJ, CARBON 3.3K			

ELECTRICAL PARTS

Ref.No.	Part No.	Description
S301	1-554-303-21	SWITCH, KEY BOARD (1)
S302	1-554-303-21	SWITCH, KEY BOARD (2)
S303	1-554-303-21	SWITCH, KEY BOARD (3)
S304	1-554-303-21	SWITCH, KEY BOARD (4)
S305	1-554-303-21	SWITCH, KEY BOARD (5)
S306	1-554-303-21	SWITCH, KEY BOARD (6)
S307	1-554-303-21	SWITCH, KEY BOARD (7)
S308	1-554-303-21	SWITCH, KEY BOARD (8)
S309	1-554-303-21	SWITCH, KEY BOARD (9)
S310	1-554-303-21	SWITCH, KEY BOARD (MEMORY)
S311	1-554-303-21	SWITCH, KEY BOARD (0)
S312	1-554-303-21	SWITCH, KEY BOARD (ENTER)
S313	1-570-876-11	SWITCH, KEY BOARD (MEMORY)
S314	1-570-876-11	SWITCH, KEY BOARD (+)
S315	1-570-876-11	SWITCH, KEY BOARD (-)
S316	1-570-876-11	SWITCH, KEY BOARD (BAND)
S317	1-570-876-11	SWITCH, KEY BOARD (STEREO MUTING)
TB001	1-536-707-00	TERMINAL BOARD, PUSH 2P
TB002	1-563-199-11	CONNECTOR, PAL
X201	1-567-250-11	OSCILLATOR, CERAMIC
X301	1-567-736-11	VIBRATOR, CRYSTAL

STEREO CASSETTE DECK AMPLIFIER [DXA-209W]

*US Model
Canadian Model
AEP Model
UK Model*

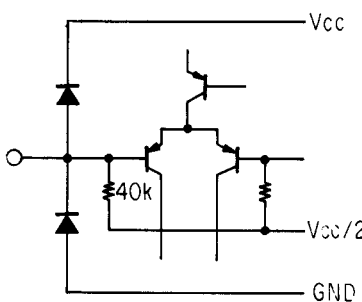
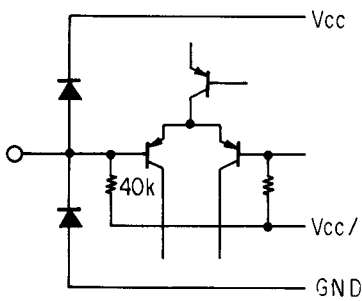
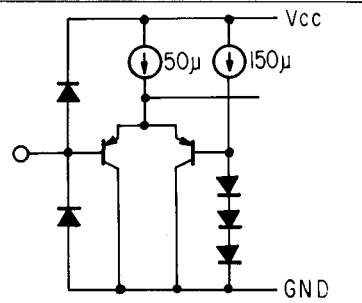
SECTION 1 OUTLINE

1-1. ON THE NEW DOLBY-B NOISE-REDUCTION IC CX1101P/M (IC303)

The CX1101P/M is a new IC incorporating 2-channel Dolby-B type noise-reducing processor built into one chip. By developing this IC, these many components outside this kind of IC have been extensively eliminated. This IC is made available by building filter circuits on the chip by utilizing thin-film capacitors which have very-large capacitances per unit space, and this is a silicon-monolithic IC.

1) Descriptions On Pins and Equivalent Circuits:

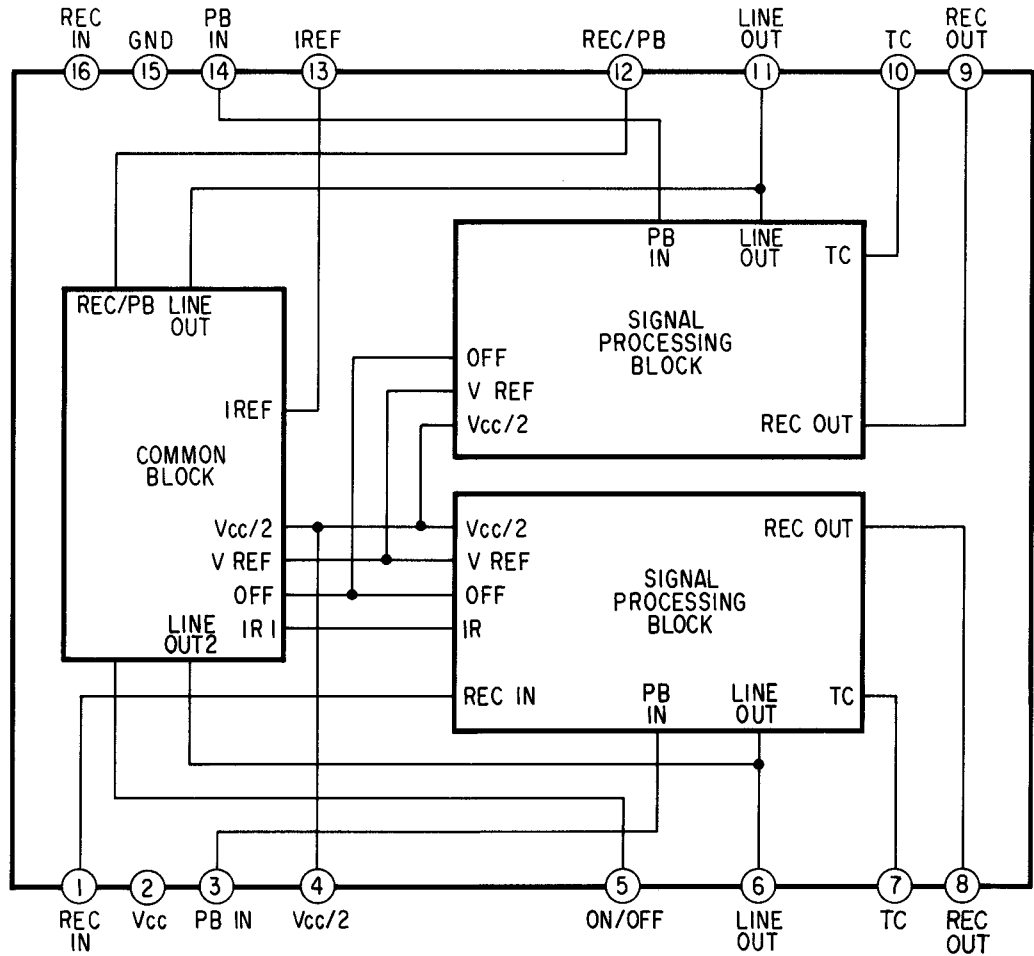
$T_a = 25^\circ\text{C}$, $V_{cc} = 12\text{V}$ (single-ended), without signals:

PIN Nr.	PIN NAMING	Z (in)	VDC	EQUIVALENT CIRCUIT	FUNCTION
1, 16	REC IN	40 k Ω	6.0V		Recording (encoding) input terminals
2	Vcc	—	12.0V		Power-supply input terminal
3, 14	PB IN	40 k Ω	6.0V		Playback (decoding) input terminals
4	Vcc/2	1 k Ω	6.0V		Used as the Vcc/2 terminal when single-voltage power supply is used. Used as the grounding terminal when two power-supply voltages of positive and negative are used.
5	ON/OFF	—	—		Noise reduction ON/OFF terminal. ON: "L" (low) state OFF: "H" (high) state

PIN Nr.	PIN NAMING	Z (in)	VDC	EQUIVALENT CIRCUIT	FUNCTION
6, 11	LINE OUT	—	6.0V		Line (decoding)-output terminals.
7, 10	TC	—	0.3V		Time-constant connection terminals for the level detectors.
8, 9	REC OUT	—	6.0V		Record (encoding)-output terminals.
12	REC/PB	—	—		<p>Record/playback (encoding/decoding) changeover terminals.</p> <p>Playback (decoding): "H" (high) Record (encoding): "L" (low)</p>

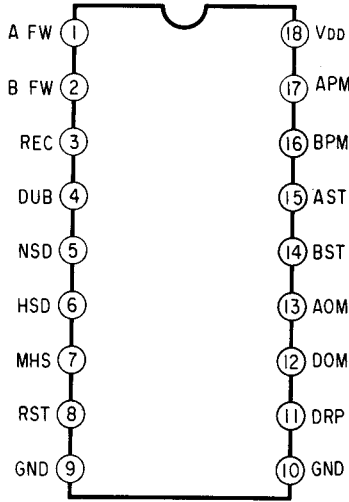
PIN Nr.	PIN NAMING	Z (in)	VDC	EQUIVALENT CIRCUIT	FUNCTION
13	IREF	—	1.2V		Reference-current input terminal for the active filters.
15	GND	—	0V		Acts as the grounding terminal in case of single-voltage power supply. Acts as the negative power-supply terminal in case of positive and negative two power-supply voltages are used.

2) Block Diagram:



1-2. ON THE GATE ARRAY IC μ PD65005C112 (IC501)

This IC is used to accommodate the various functions of the double decks of this unit.
This gate-array IC requires 4 (four) input and 5 (five) output signals.



1) Descriptions of Pins and Functions:

PIN Nr.	PIN NAMING	INPUT OR OUTPUT	FUNCTION
1	AFW	INPUT	Turns ON when the forward button of the "deck A" is depressed and the logical state changes from "H" (high) to "L" (low). LOW active.
2	BFW	INPUT	Turns ON when the forward button of the "deck B" is depressed and the logical state changes from "H" (high) to "L" (low). LOW active.
3	REC	INPUT	Turns ON when the record button of the "deck B" is depressed and the logical state changes from "H" (high) to "L" (low). LOW active. When this REC terminal is turned ON, pin 2 (BFW) mentioned above is also turned ON due to the mechanical linkage of the unit. NOTE: Also applies to Pins 1 and 2.
4	DUB	INPUT	Receives active "H" pulse signals from the takt switches. When a takt switch is kept depressed, this terminal also holds "H" state. HIGH active pulse. NOTE: No chattering-protection circuits are provided inside the IC at the inputs. Chattering-canceling are made outside the IC at each input terminal.
5	NSD	OUTPUT	These outputs drive the LEDs. The logical state of them cyclically change on receipt of the DUB signal as "H" (high)-NSD/"H" (high)-HSD → "L" (low)-NSD/"H" (high)-HSD → "H" (high)-NSD/"L" (low)-HSD → again "H" (high)-NSD/"H" (high)-HSD combinations. LOW active. These two outputs never become in "L" and "L" conditions at the same time. NSD means Normal-Speed Dubbing and HSD stands for High Speed Dubbing. And the "NORMAL" or "HIGH" LED lights up according to the dubbing mode.
6	HSD	OUTPUT	
7	MHS	OUTPUT	Outputs signals depending upon the conditions of the AFW/REC and NSD/HSD combinations.

MEMO

PIN Nr.	PIN NAMING	INPUT OR OUTPUT	FUNCTION
8	RST	INPUT	Receives “L” (low)-state signal to reset all the output terminals at the power-on-reset condition.
9	GND	N/A	Grounding terminal.
10	GND	OUTPUT	Ground-return terminal.
11	DRP	OUTPUT	Controls the changeover of the Dolby recording and Dolby playback on receipt of the recording-condition signal or dubbing-condition signal. HIGH active. In the recording condition other than the dubbing modes, this terminal becomes in the recording state. In other modes than the recordings, this terminal becomes in the playback state.
12	DOM	OUTPUT	LINE-OUT muting terminal. Mutes the output line from the Dolby IC. HIGH active. LINE-OUT muting is disabled on receipt of “L” (low)-state signal. Outputs signal depending upon the input-signal condition of the AFW, BFW, REC and the DUB signals. DOM stands for Dolby-Output Muting. The signal from this terminal make a combination with the signal from the AOM terminal, pin 13 below.
13	AOM	OUTPUT	Switches the LINE-OUT signals. In the dubbing mode, the output signals from the playback amplifier of the “deck A” are to be directly dubbed and the monitoring is to be made possible during the dubbing operations, this terminal is also capable of muting these output signals from the “deck A”. Namely, this terminal becomes in “L” (low) state when the muting to the output signals from the playback amplifiers of the “deck A” is to be turned off. This terminal make a combination with the DOM terminal, pin 12 outlined above. “HIGH” active, and means A-Out Muting.
14	BST	OUTPUT	Acts as the synchro-dubbing starter for the relayed plays from the “deck A” to “deck B”. When any of the dubbing mode is set up and the recording is started while the playback operation at the “deck A” is not in action yet, the output signal from this terminal initiates routine to stop the motor of the “deck B” first. Then, the motor of the “deck B” starts to turn at the same moment the motor at the “deck A” starts to turn. Thus, the initialization of the synchro-start in the dubbing mode is made possible. The output signal is obtained depending upon the order of ON-OFF of the AFW and BFW signals and upon the state of ON-OFF of the REC signal. “HIGH” active, and means B-motor Stop.
15	AST	OUTPUT	Outputs effective signals in accordance with the order of ON-OFF of the AFW and BFW signals and with the state of the REC signal. When the BFW signals is present with the forward button of the “deck B” depressed earlier than the “deck A”, and the forward button of the “deck A” is depressed successively, the motor at the “deck A” stops turning. Thus, the relayed playback from the “deck B” to “deck A” is made available.
16	BPM	OUTPUT	When both the forward buttons are depressed, this terminal transmits the signal to turn the muting signal for the deck effected earlier for forwarding mode. When one of the two decks are made into the playback mode, the muting action is effective only to that deck. “HIGH” active. BPM means B-deck Playback Muting and, APM stands for deck-A Playback Muting.
17	APM	OUTPUT	
18	VDD	INPUT	Power-supply voltage input terminal.

SECTION 2
ADJUSTMENTS

2-1. MECHANICAL ADJUSTMENTS
PRECAUTION

- Clean the following parts with a denatured-alcohol-moistened swab:

record/playback heads	pinch rollers
erase heads	rubber belts
capstan	idlers
- Demagnetize the record/playback head with a head demagnetizer.
- Do not use a magnetized screwdriver for the adjustments.
- After the adjustments, apply suitable locking compound to the parts adjusted.
- The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

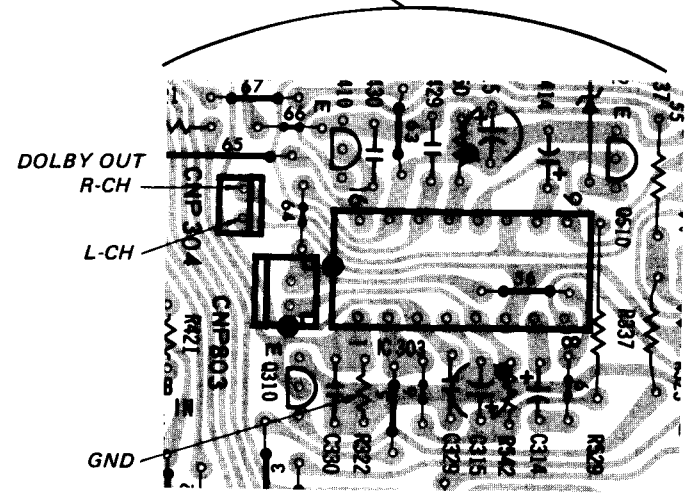
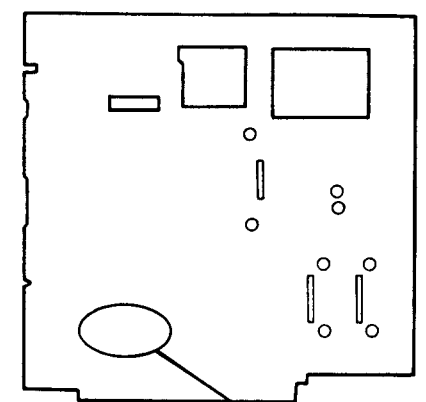
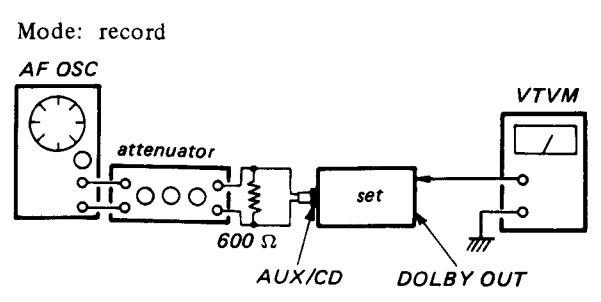
Torque	Torquement	Meter reading
FWD	CQ-102C	30 – 70 g·cm (0.42 – 0.97 oz·inch)
FWD Back tension	CQ-102C	1.5 – 5.5 g·cm (0.020 – 0.076 oz·inch)
FF. REW	CQ-201B	63 g·cm or more 0.87 oz·inch)

2-2. ELECTRICAL ADJUSTMENTS

- Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
 - Do not use a magnetized screwdriver for the adjustments.
 - After the adjustments, apply suitable locking compound to the parts adjusted.
 - The adjustments should be performed with the rated power supply voltage unless otherwise noted.
 - The adjustments should be performed in the order given in this service manual. (As a general rule, playback circuit adjustment should be completed before performing recording circuit adjustment.)
 - The adjustments should be performed for both L-CH and R-CH.
- Switches and controls should be set as follows unless otherwise specified.

DOLBY NR switch: OFF

- Standard Record:
Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.



Standard Input Level

	AUX/CD
source impedance	600 Ω
input level	0.35 V (–7 dB)

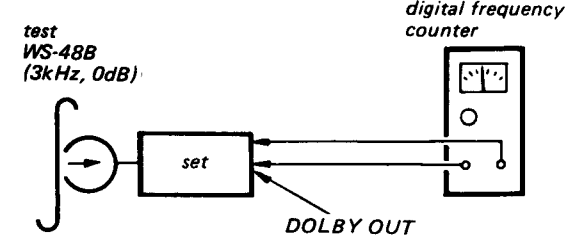
Standard Output Level

	DOLBY OUT
load impedance	nothing
output level	0.4 V (–5.7 dB)

Tape Speed Adjustment

Procedure:

Mode: FWD playback



- Short CNP505 with a lead wire.

Specification: high speed

Digital frequency counter
5,950 Hz – 6,010 Hz

Frequency difference between the beginning and the end of the tape should be within 0.25% (15 Hz).

Adjustment location:

- DECK-A side RV501
- DECK-B side RV503

- Remove the wire in step 1.

Specification: normal speed

Digital frequency counter
2,970 Hz – 2,990 Hz

Frequency difference between the beginning and the end of the tape should be within 0.25% (15 Hz).

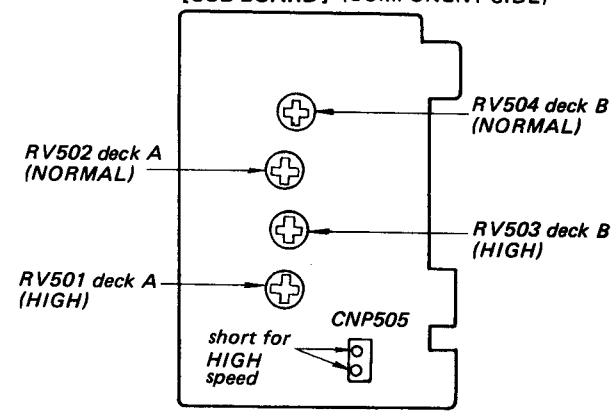
Adjustment location:

- DECK-A side RV502
- DECK-B side RV504

- If the specifications are not satisfied, repeat steps 1 and 2.

Adjustment Location: SUB board

[SUB BOARD] (COMPONENT SIDE)



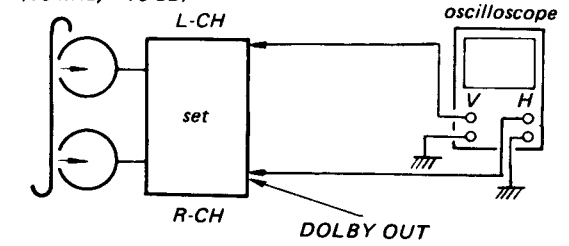
Record/Playback Head Azimuth Adjustment

Note: Perform this adjustments for both decks.

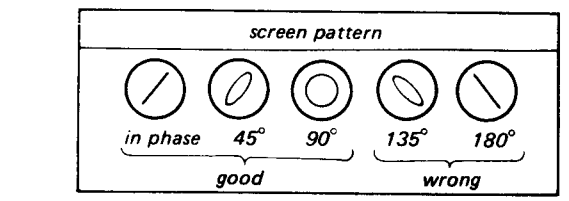
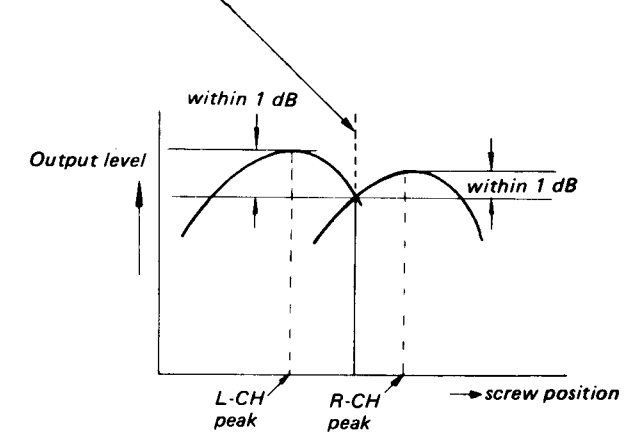
Procedure:

- Mode: FWD playback

test tape
P-4-A100
(10 kHz, –10 dB)

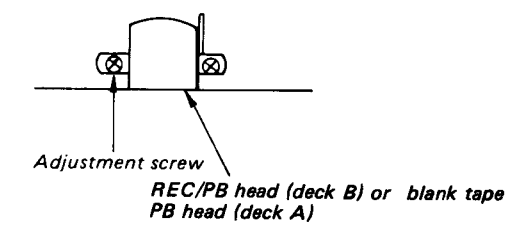


- Turn the adjustment screw and check output peaks. If the peaks do not match for L-CH and R-CH, turn the adjustment screw so that outputs match within 1 dB of peak.



- After the adjustments, apply suitable locking compound to the parts adjusted.

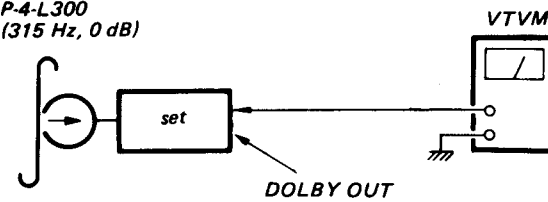
Adjustment Location:



Playback Level Adjustment

Procedure:

Mode: FWD playback

test tape
P-4-L300
(315 Hz, 0 dB)

Adjust,

DECK-A side RV301 (L-CH), RV401 (R-CH)

DECK-B side RV302 (L-CH), RV402 (R-CH)

so that the specifications are satisfied.

Specification:

LINE OUT level: 0.38 – 0.43 V

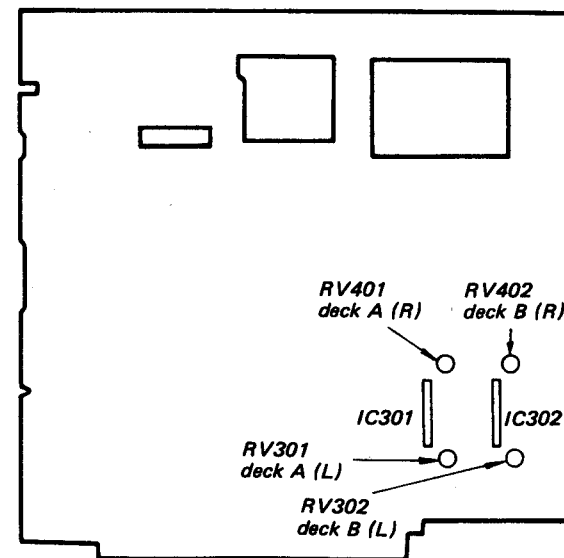
(–6.2 ~ –5.2 dB)

level difference between the channels:

within 0.5 dB

Adjustment Location: Main board

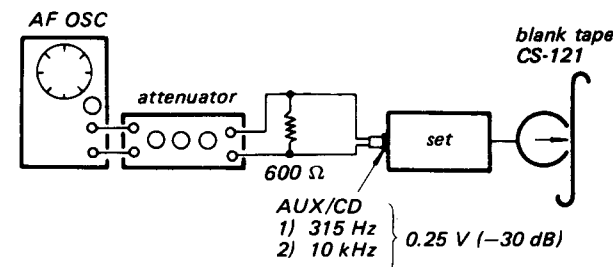
[MAIN BOARD] (COMPONENT SIDE)



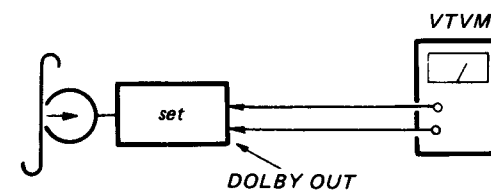
Record BIAS Current Adjustment

Procedure:

1. Mode: record



2. Mode: playback



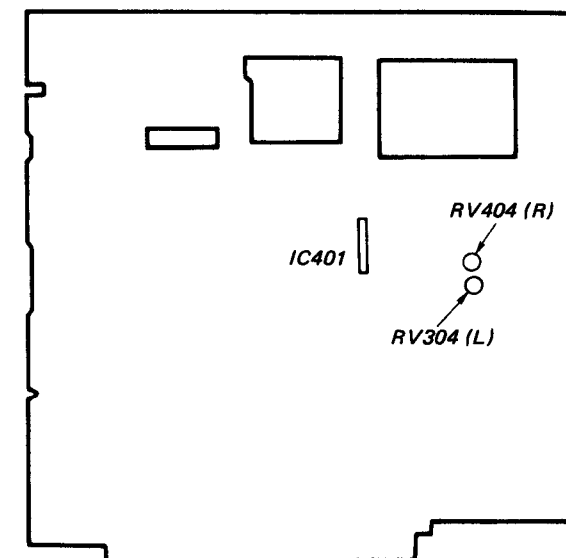
Play back the tape recorded in step 1. If the specification is not satisfied, adjust RV304 (L-CH), RV404, (R-CH) and repeat steps 1 and 2.

Specification:

The LINE OUT level of 10 kHz signal relative to that of 315 Hz: 0 dB \pm 0.5 dB

Adjustment Location: Main board

[MAIN BOARD] (COMPONENT SIDE)



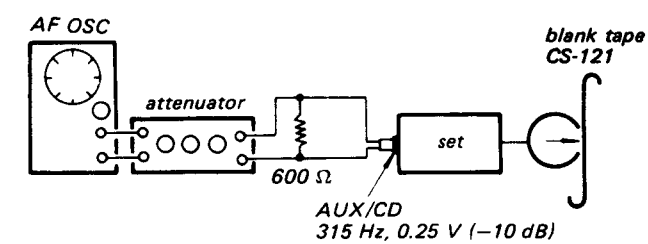
Record Level Adjustment

Setting:

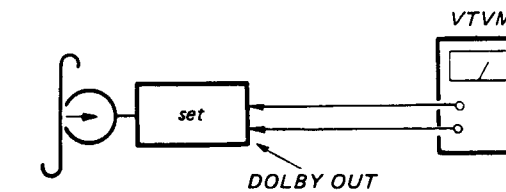
TAPE SELECT: TYPE II

Procedure:

1. Mode: record



2. Mode: playback



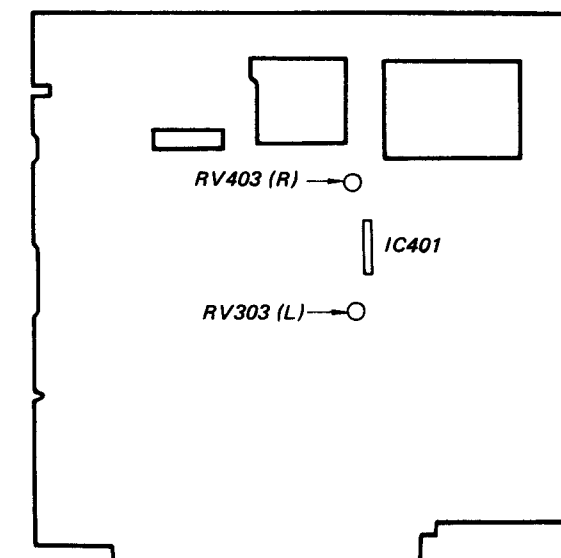
Play back the tape recorded in step 1. If the specification is not satisfied, adjust RV303 (L-CH), RV403 (R-CH) and repeat steps 1 and 2.

Specification:

DOLBY OUT level: –5.7 dB \pm 0.5 dB

Adjustment Location: Main board

[MAIN BOARD] (COMPONENT SIDE)



SECTION 3 DIAGRAMS

Semiconductor Lead Layouts

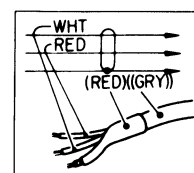
CXA1101P M5226P 	UPD65005C-112 	11ES2 1SS119
IR2E31A UPC4570HA 	2SA1175 2SD1020 	PR2222S-B1
M4066BP 	2SC634SP 2SC3402 	RBV-402-01
M5218L 	2SD774 	SEL2410E-C SEL2710W SEL2810A-C SEL2910A-C
M5F7806 	2SD1585L 	
M5F7906 	10E2N 10YD4.5B 11DQ04 1SS132 HZ6A1L HZ6B2L 	
STK4142MK2 		

● SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
IC101	H-3	Q554	F-21	D901	B-7
IC102	I-5	Q701	B-12	D902	B-7
IC103	C-19	Q702	B-12	D904	G-17
IC151	I-2	Q703	C-11	D905	G-17
IC161	J-3	Q751	D-12	D906	G-17
IC162	J-3	Q801	B-13	D907	G-17
IC163	J-4	Q802	C-13	D908	D-17
IC164	J-5	Q901	G-15	D909	C-17
IC165	J-6			D910	C-17
IC202	I-8			D911	B-17
IC301	H-23	D101	H-2	D912	J-17
IC302	H-24	D102	H-3	D914	F-17
IC303	H-20	D103	H-4	D951	J-19
IC304	I-22	D104	H-5	D952	B-18
IC401	F-22	D105	H-6	D953	D-18
IC501	F-20	D111	J-2	D954	D-18
IC701	B-11	D112	J-2	D955	J-18
IC751	B-12	D113	K-2		
IC901	G-14	D114	K-2		
IC902	G-15	D115	K-2		
Q301	J-23	D121	J-3		
Q302	J-24	D122	J-3		
Q303	J-24	D123	K-3		
Q304	J-25	D124	K-3		
Q305	F-22	D125	K-3		
Q306	F-23	D131	J-4		
Q307	G-23	D132	J-4		
Q308	F-23	D133	K-4		
Q310	I-19	D134	K-4		
Q311	F-22	D135	K-4		
Q401	H-23	D141	J-4		
Q402	G-24	D142	J-4		
Q403	G-23	D143	K-4		
Q404	G-25	D144	K-4		
Q405	E-22	D145	K-4		
Q406	E-23	D151	J-5		
Q407	D-23	D152	J-5		
Q408	E-23	D153	K-5		
Q410	H-19	D154	K-5		
Q411	E-22	D155	K-5		
Q501	E-25	D501	F-24		
Q502	E-24	D502	H-20		
Q503	E-25	D503	Q-21		
Q504	E-24	D504	H-21		
Q505	D-24	D505	B-15		
Q506	G-20	D506	B-15		
Q507	E-12	D507	B-14		
Q508	E-13	D508	G-19		
Q509	G-22	D509	H-19		
Q510	H-21	D510	G-20		
Q511	G-12	D511	G-20		
Q513	E-12	D512	G-20		
Q514	E-13	D513	E-24		
Q515	G-13	D551	E-21		
Q516	G-12	D552	E-21		
Q517	H-22	D701	B-10		
Q518	H-22	D702	D-11		
Q551	F-21	D703	D-11		
Q552	F-21	D751	C-9		
Q553	D-21	D801	C-11		

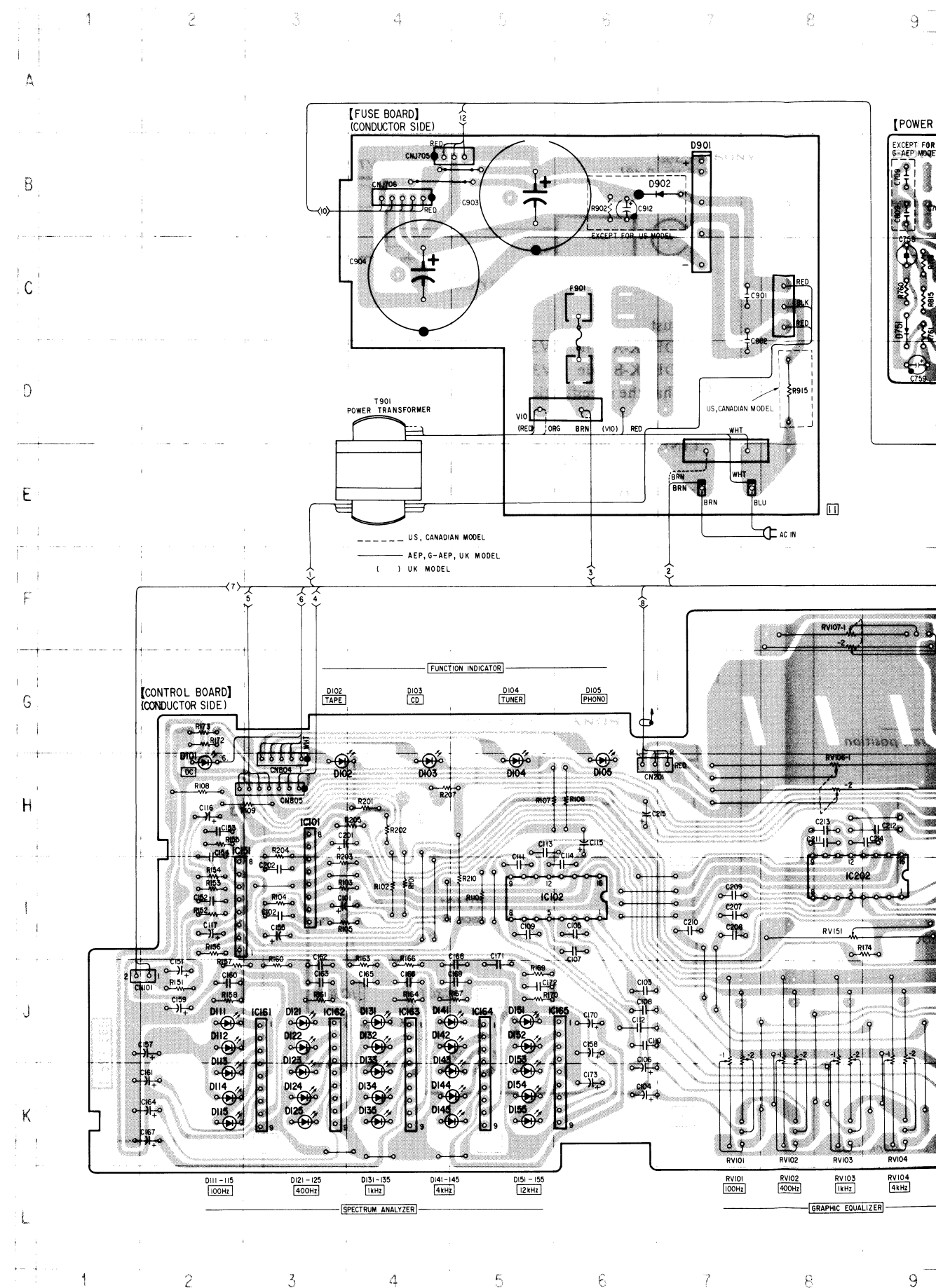
Note:

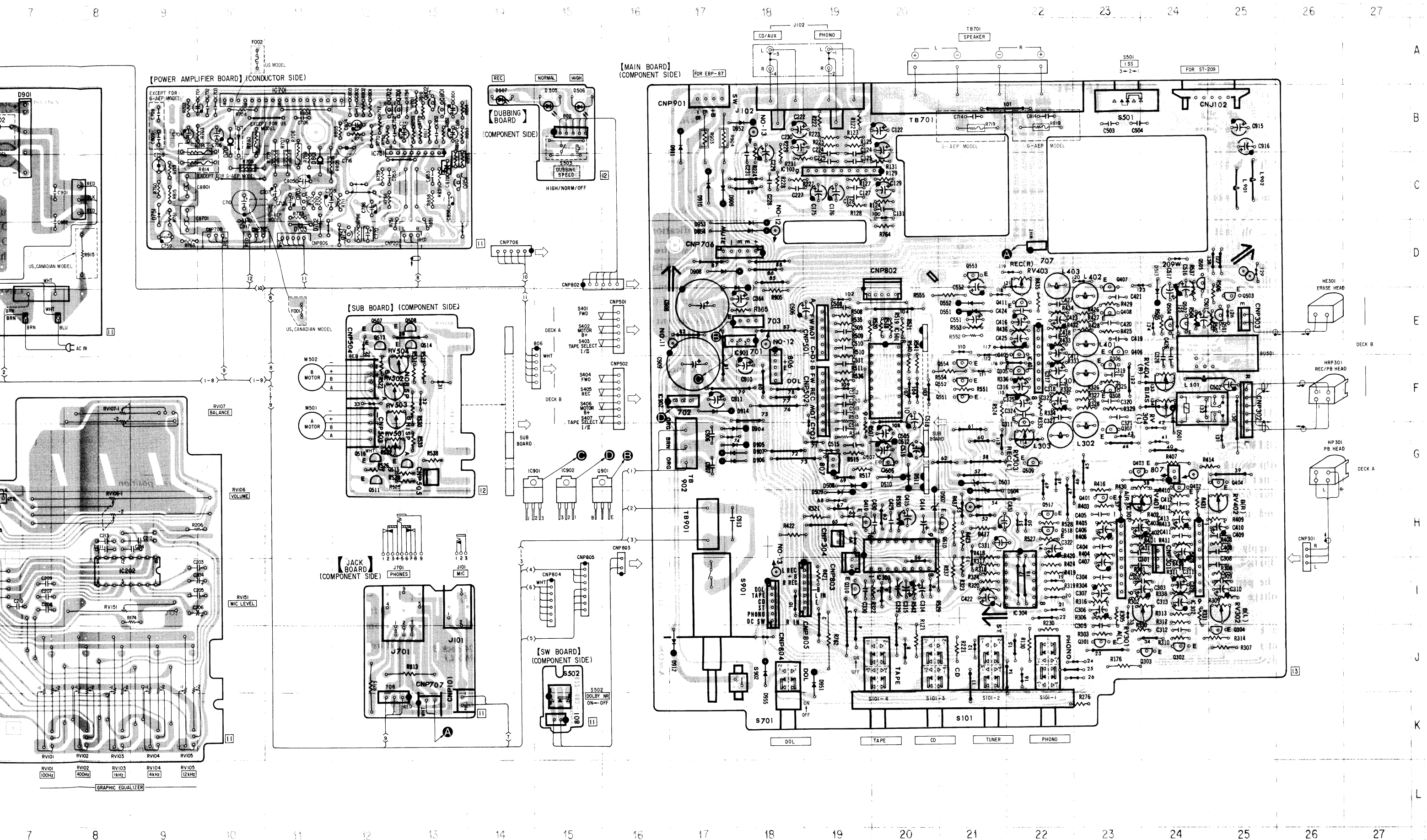
- Color code of sleeving over the end of the jacket.



- : parts extracted from the component side.

3-1. MOUNTING DIAGRAM





SECTION 2 ADJUSTMENTS

2-1. MECHANICAL ADJUSTMENTS PRECAUTION

- Clean the following parts with a denatured-alcohol-moistened swab:

record/playback heads	pinch rollers
erase heads	rubber belts
capstan	idlers
- Demagnetize the record/playback head with a head demagnetizer.
- Do not use a magnetized screwdriver for the adjustments.
- After the adjustments, apply suitable locking compound to the parts adjusted.
- The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque unit	Meter reading
FWD	CQ-102C	30 – 70 g·cm (0.42 – 0.97 oz·inch)
FWD Back tension	CQ-102C	1.5 – 5.5 g·cm (0.020 – 0.076 oz·inch)
FF. REW	CQ-201B	63 g·cm or more (0.87 oz·inch)

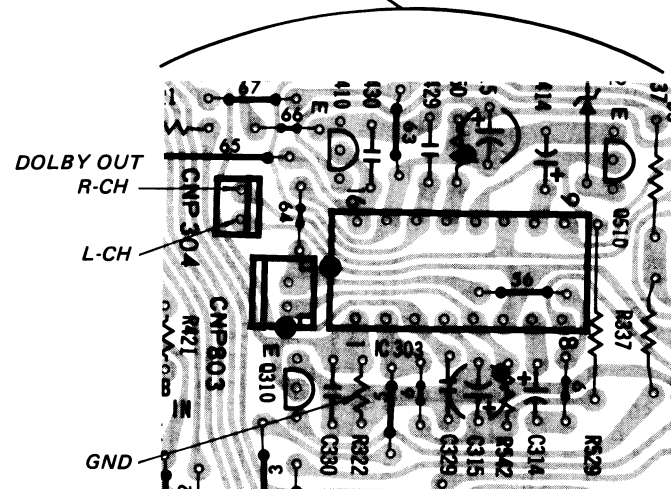
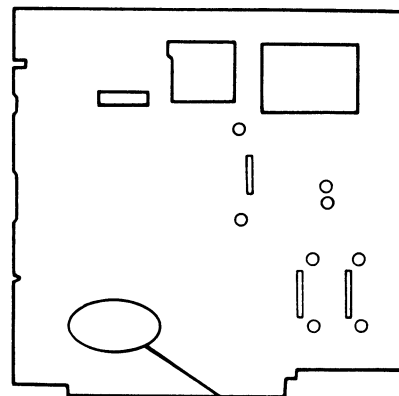
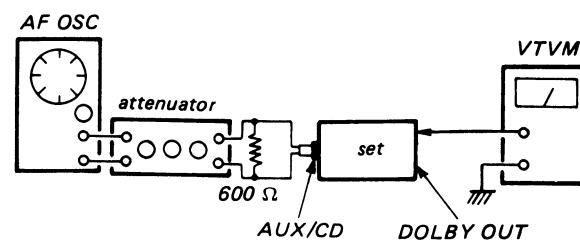
2-2. ELECTRICAL ADJUSTMENTS

- Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
 - Do not use a magnetized screwdriver for the adjustments.
 - After the adjustments, apply suitable locking compound to the parts adjusted.
 - The adjustments should be performed with the rated power supply voltage unless otherwise noted.
 - The adjustments should be performed in the order given in this service manual. (As a general rule, playback circuit adjustment should be completed before performing recording circuit adjustment.)
 - The adjustments should be performed for both L-CH and R-CH.
- Switches and controls should be set as follows unless otherwise specified.

DOLBY NR switch: OFF

- Standard Record:
Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

Mode: record



Standard Input Level

	AUX/CD
source impedance	600 Ω
input level	0.35 V (–7 dB)

Standard Output Level

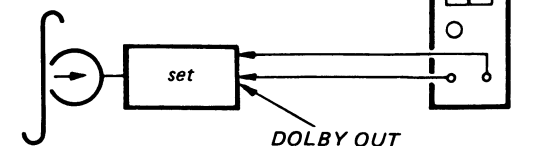
	DOLBY OUT
load impedance	nothing
output level	0.4 V (–5.7 dB)

Tape Speed Adjustment

Procedure:

Mode: FWD playback

test
WS-48B
(3 kHz, 0 dB)



- Short CNP505 with a lead wire.

Specification: high speed

Digital frequency counter
5,950 Hz – 6,010 Hz

Frequency difference between the beginning and the end of the tape should be within 0.25% (15 Hz).

Adjustment location:

DECK-A side RV501
DECK-B side RV503

- Remove the wire in step 1.

Specification: normal speed

Digital frequency counter
2,970 Hz – 2,990 Hz

Frequency difference between the beginning and the end of the tape should be within 0.25% (15 Hz).

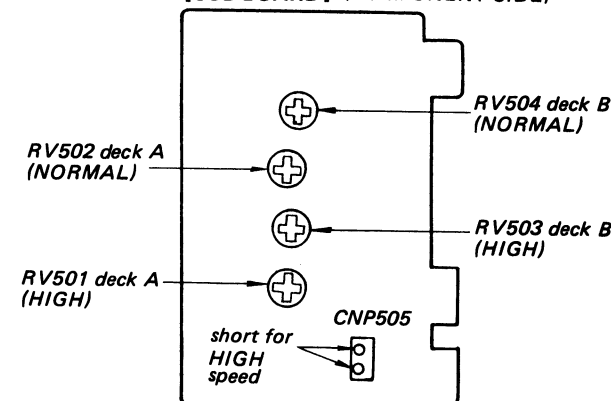
Adjustment location:

DECK-A side RV502
DECK-B side RV504

- If the specifications are not satisfied, repeat steps 1 and 2.

Adjustment Location: SUB board

[SUB BOARD] (COMPONENT SIDE)



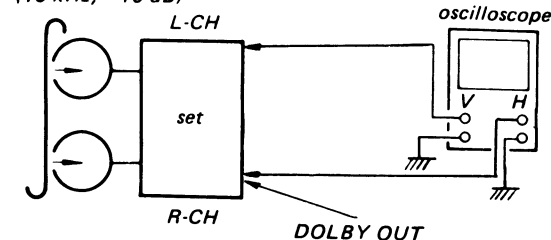
Record/Playback Head Azimuth Adjustment

Note: Perform this adjustments for both decks.

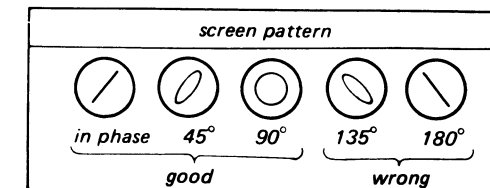
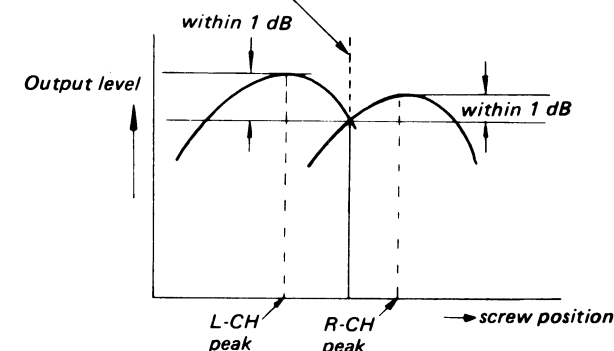
Procedure:

- Mode: FWD playback

test tape
P-4-A100
(10 kHz, –10 dB)

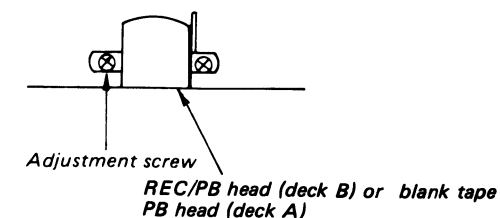


- Turn the adjustment screw and check output peaks. If the peaks do not match for L-CH and R-CH, turn the adjustment screw so that outputs match within 1 dB of peak.



- After the adjustments, apply suitable locking compound to the parts adjusted.

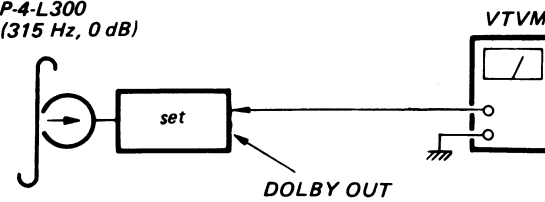
Adjustment Location:



Playback Level Adjustment

Procedure:

Mode: FWD playback

test tape
P-4-L300
(315 Hz, 0 dB)

Adjust,

DECK-A side RV301 (L-CH), RV401 (R-CH)

DECK-B side RV302 (L-CH), RV402 (R-CH)

so that the specifications are satisfied.

Specification:

LINE OUT level: 0.38 – 0.43 V

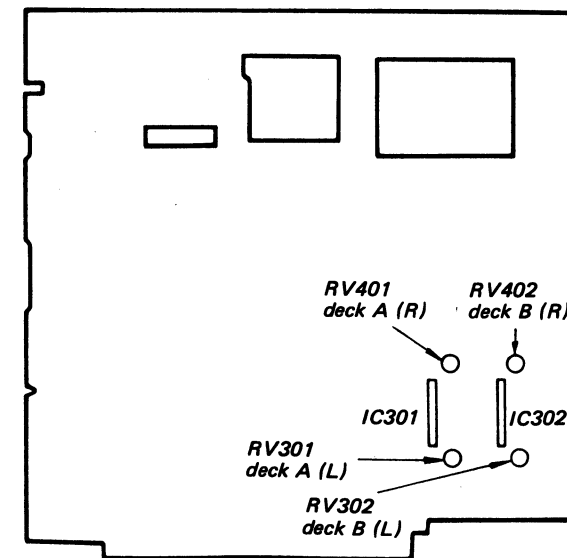
(-6.2 ~ -5.2 dB)

level difference between the channels:

within 0.5 dB

Adjustment Location: Main board

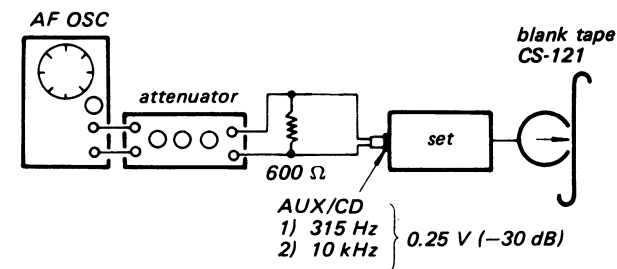
[MAIN BOARD] (COMPONENT SIDE)



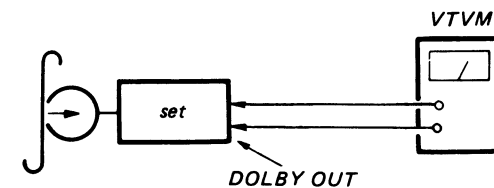
Record BIAS Current Adjustment

Procedure:

1. Mode: record



2. Mode: playback



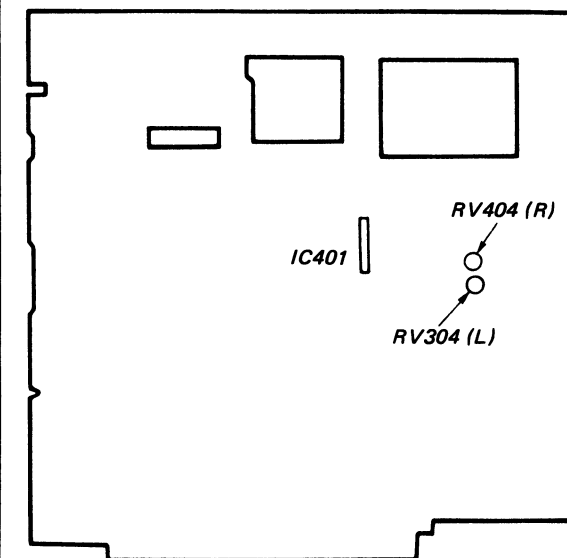
Play back the tape recorded in step 1. If the specification is not satisfied, adjust RV304 (L-CH), RV404, (R-CH) and repeat steps 1 and 2.

Specification:

The LINE OUT level of 10 kHz signal relative to that of 315 Hz: 0 dB \pm 0.5 dB

Adjustment Location: Main board

[MAIN BOARD] (COMPONENT SIDE)



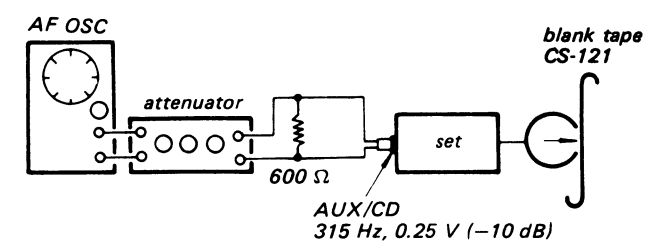
Record Level Adjustment

Setting:

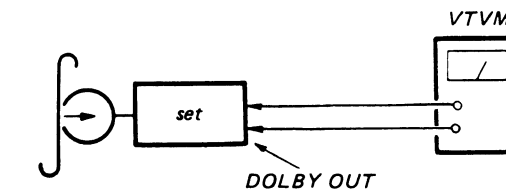
TAPE SELECT: TYPE II

Procedure:

1. Mode: record



2. Mode: playback



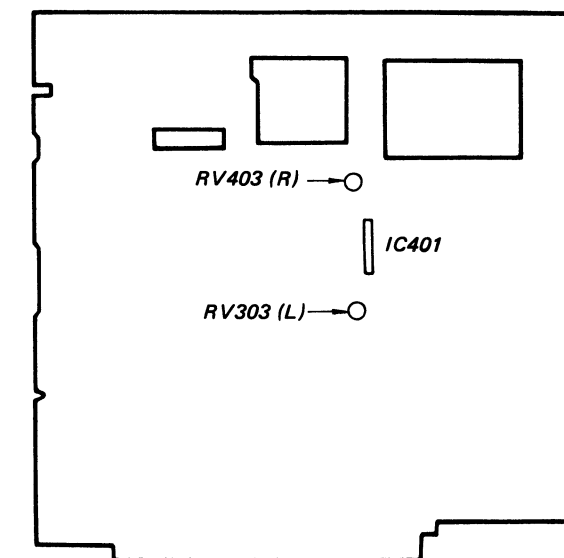
Play back the tape recorded in step 1. If the specification is not satisfied, adjust RV303 (L-CH), RV403 (R-CH) and repeat steps 1 and 2.

Specification:

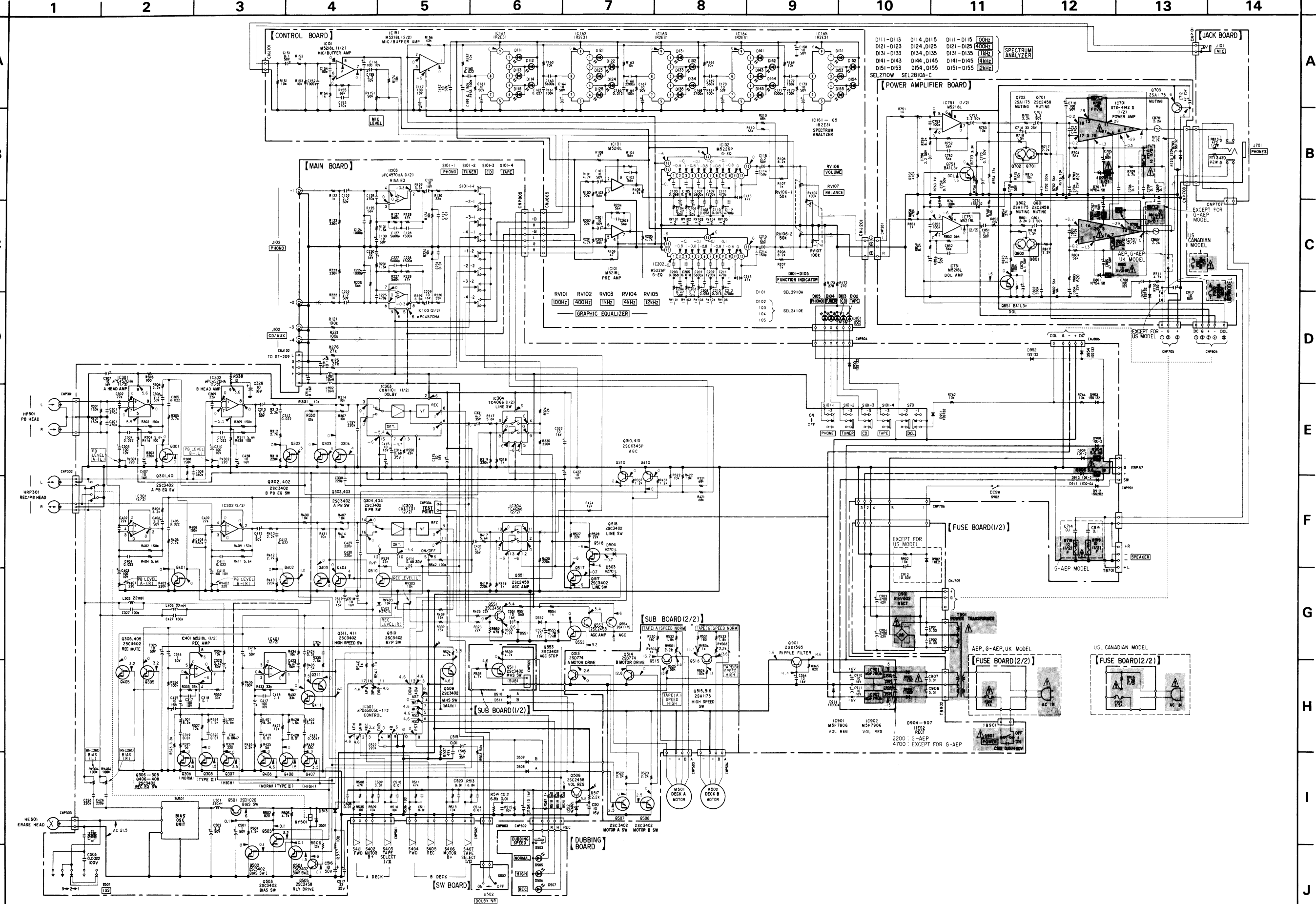
DOLBY OUT level: -5.7 dB \pm 0.5 dB

Adjustment Location: Main board

[MAIN BOARD] (COMPONENT SIDE)



3-2. SCHEMATIC DIAGRAM



Note:

All capacitors are in 50 WV or less and tantalums.

All resistors are in specified.

PHONO (L)
PHONO (R)
CD/AUX (L)
CD/AUX (R)

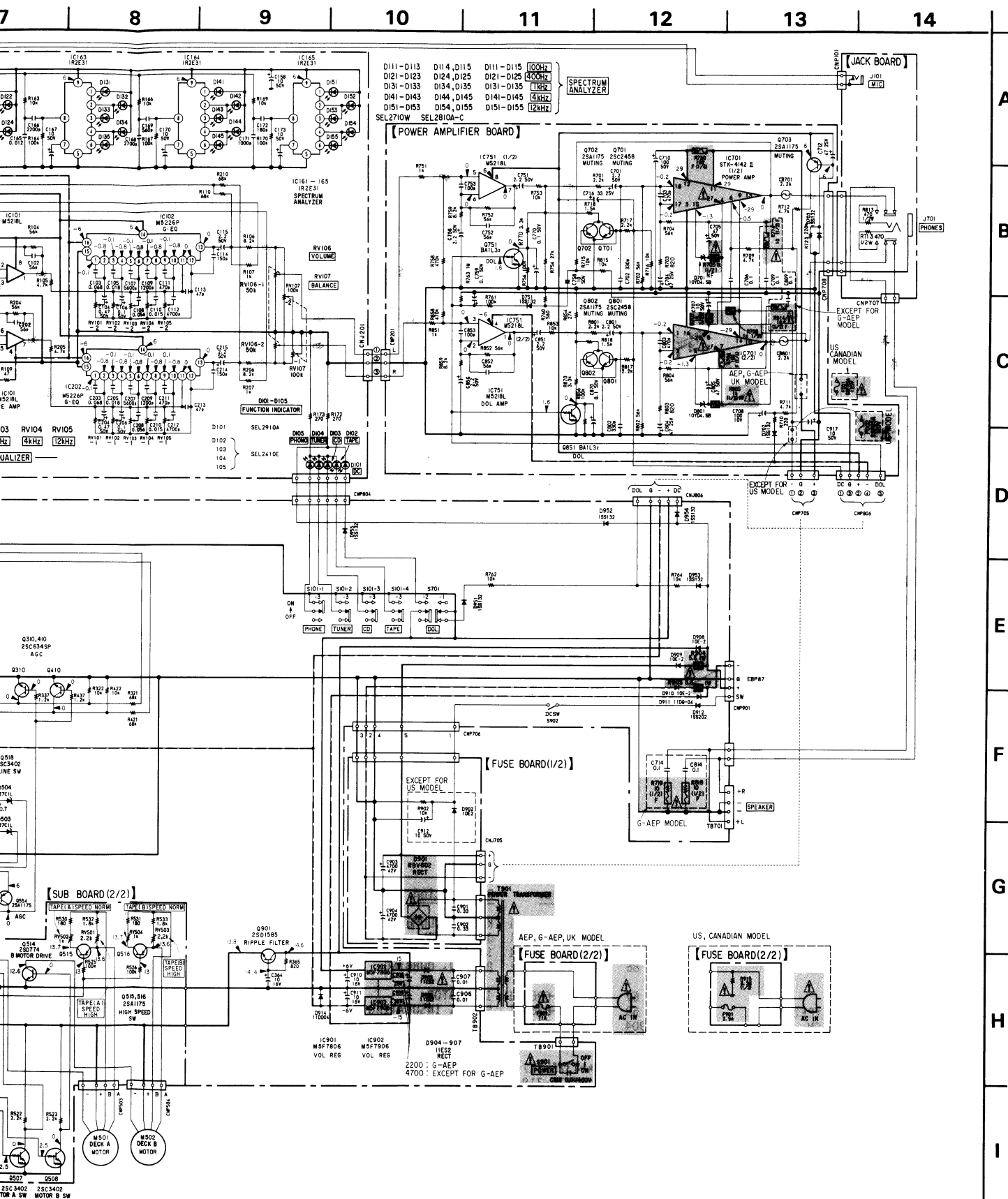
Note: The components are critical part numbers.

Components for right channel. Reference
: nonflam
: fusible resis
Switch

Ref. No.	Switch
S1	A-FV
S2	A-MOT
S3	A-TAPE S
S4	B-FV
S5	REC
S6	B-MOT
S7	B-TAPE S
S101	FUNCTION
S501	ISS
S502	DOLBY
S503	DUBBING
S701	DO
S901	AC POW
S902	DC POW

: B+ bus.
: B- bus.
: adjustment
AC voltage readings
Readings are taken with a VOM (50 kΩ STOP mode only)





Note:

- All capacitors are in μF unless otherwise noted. pF : μF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.

PHONO (L) TAPE (L) TUNER (L)
PHONO (R) TAPE (R) TUNER (R)
CD/AUX (L) CD/AUX (R)

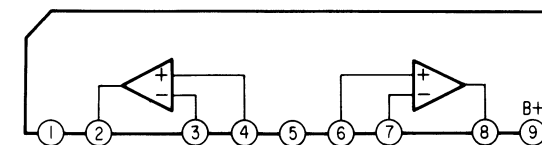
Note: The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

- Components for right channel have same values as for left channel. Reference numbers are coded from
- \square : nonflammable resistor.
- \square : fusible resistor.
- Switch

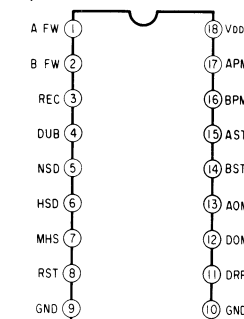
Ref. No.	Switch	Position
S1	A-FW	OFF
S2	A-MOTOR	OFF
S3	A-TAPE SELECT	TYPE-I
S4	B-FW	OFF
S5	REC	OFF
S6	B-MOTOR	OFF
S7	B-TAPE SELECT	TYPE-I
S101	FUNCTION	PHONO
S501	ISS	1
S502	DOLBY NR	OFF
S503	DUBBING SPEED	NORM
S701	DOL	OFF
S901	AC POWER	OFF
S902	DC POWER	OFF

- --- : B+ bus.
- --- : B- bus.
- \square : adjustment for repair.
- AC voltage readings in the bias oscillator with a VTVM.
- Readings are taken under no-signal (detuned) conditions with a VOM (50 $\text{k}\Omega/\text{V}$).
- STOP mode only

M5218L

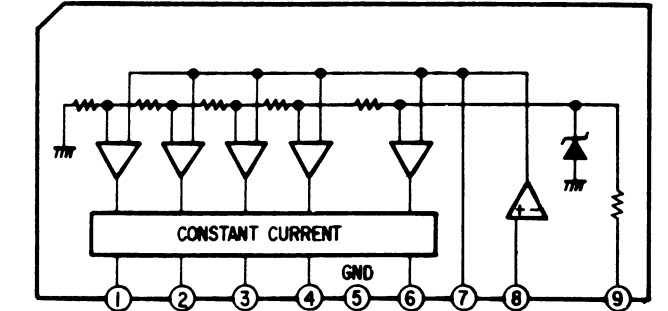


$\mu\text{PD65005C112}$

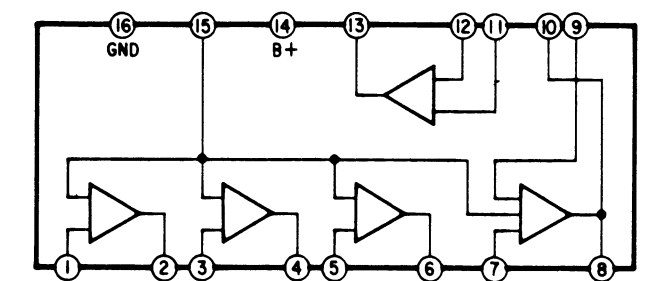


IC BLOCK DIAGRAM

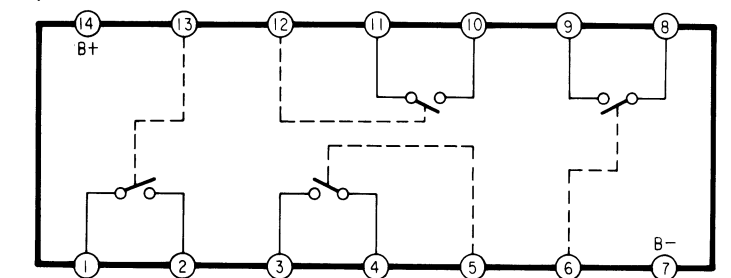
IR2E31A



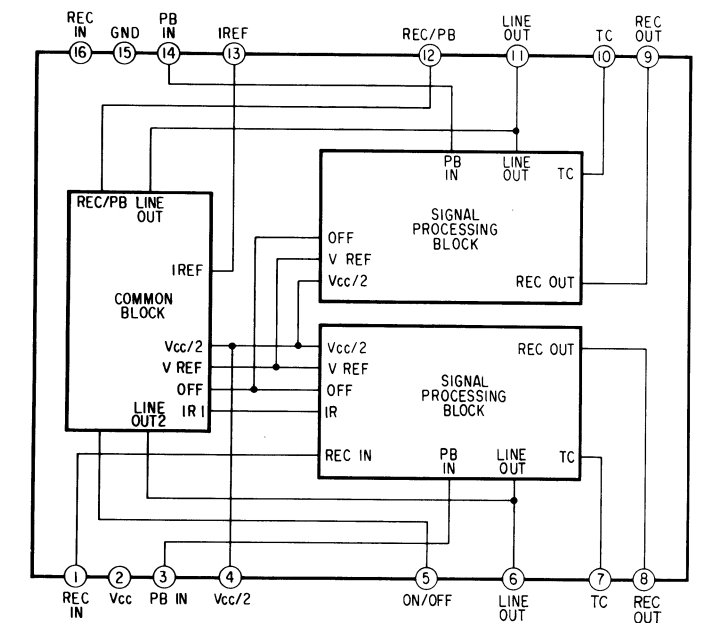
M5226P



μ4066BP



CXA1101P




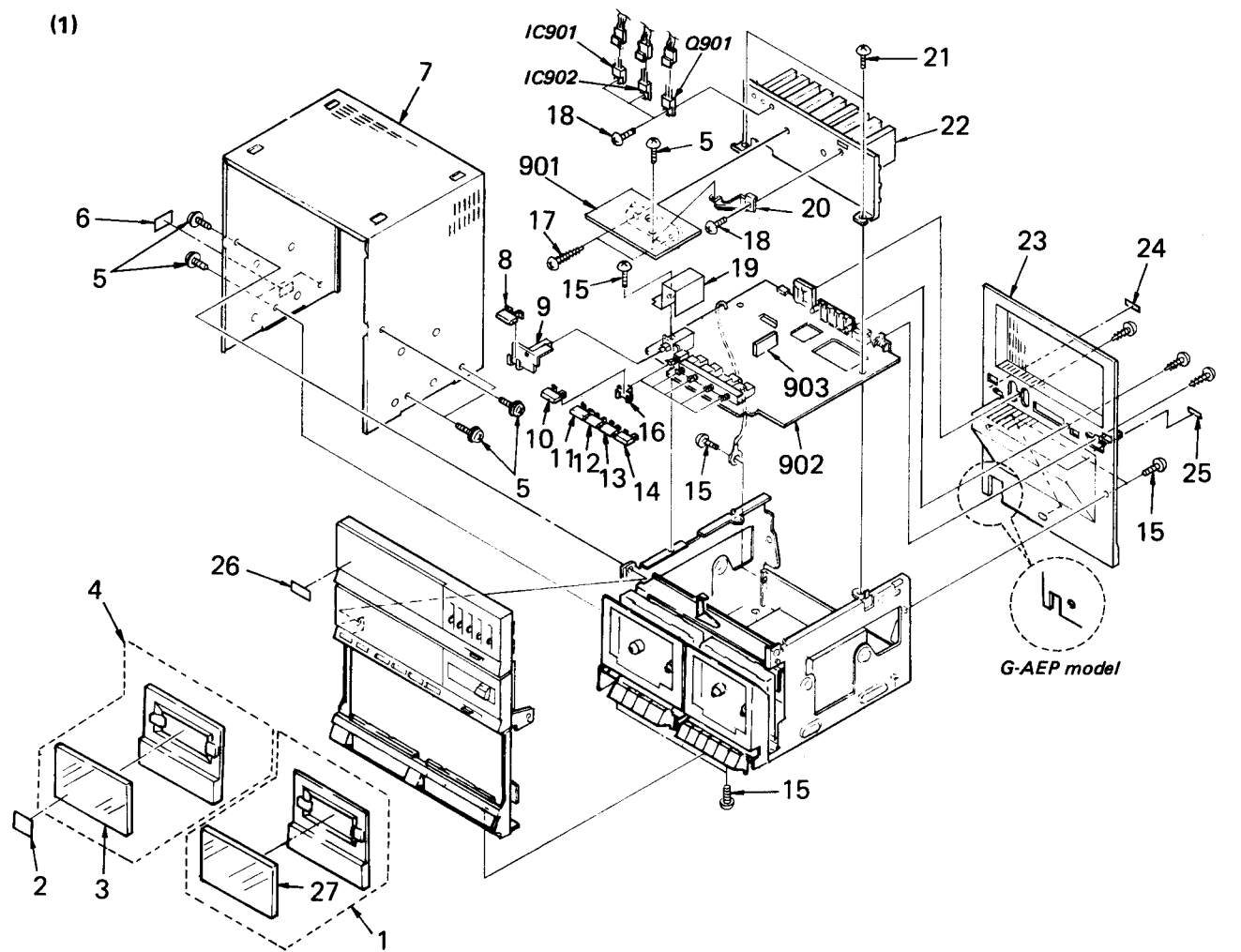
SECTION 4
EXPLODED VIEWS

- NOTE:

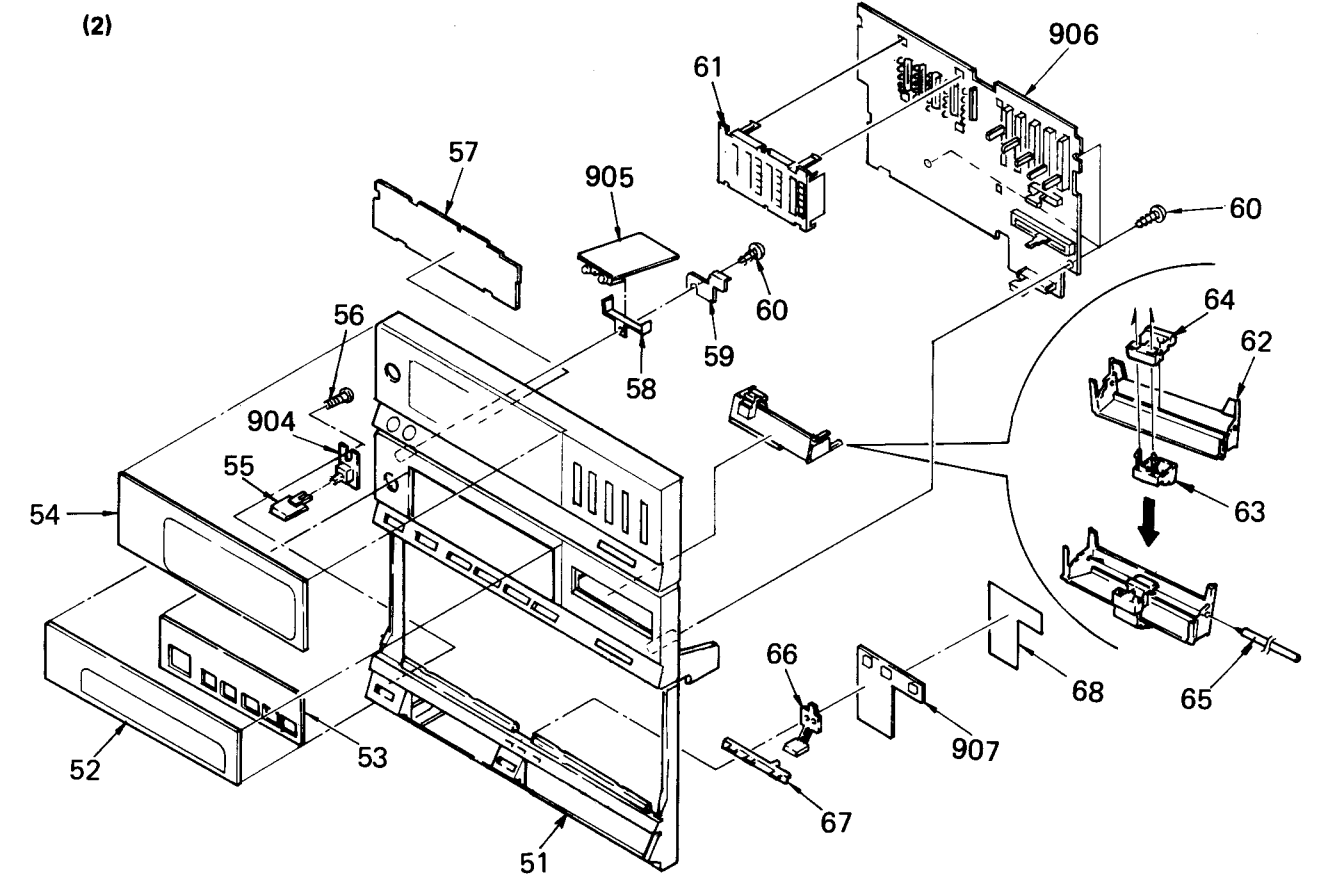
 - The mechanical parts with no reference number in the exploded views are not supplied.
 - Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
 - Color Indication of Appearance Parts
Example: (RED) KNOB, BALANCE (WHITE)

Cabinet's Color Parts' Color

The components identified by shading and mark  are critical for safety. Replace only with part number specified.



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	X-4919-619-1	LID (B) ASSY, CASSETTE		15	7-682-147-01	SCREW +BVTT 3X6 (S)	
2	3-703-713-41	STICKER, SONY SYMBOL (10)		16	*4-919-654-01	JOINT, FUNCTION	
3	4-920-812-01	WINDOW (A), CASSETTE		17	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3	
4	X-4919-618-1	LID (A) ASSY, CASSETTE		18	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3	
5	7-682-148-09	SCREW, M3 CASE STOPPER		19	*4-920-828-01	COVER, AC	
6	*4-919-669-01	(Canadian)...LABEL, MODEL NUMBER (CA)		20	*4-910-064-01	BRACKET (H), PC BOARD	
	*4-920-801-01	(UK).....LABEL, MODEL NUMBER (UK)		21	7-682-148-01	SCREW +BVTT 3X8 (S)	
	*4-920-802-01	(AEP).....LABEL, MODEL NUMBER (AE2)		22	*4-919-663-11	HEAT SINK	
	*4-920-803-01	(AEP).....LABEL, MODEL NUMBER (AE1)		23	*4-919-664-11	(EXCEPT FOR G-AEP)...PLATE, JACK	
	*4-920-804-01	(G-AEP).....LABEL, MODEL NUMBER (AE4)			*4-919-664-21	(G-AEP).....PLATE, JACK	
	*4-920-849-01	(US).....LABEL, MODEL NUMBER (U)		24	*4-919-645-01	LABEL (B), CONNECTOR	
7	4-920-815-01	CASE		25	*4-919-644-01	LABEL (A), CONNECTOR	
8	4-914-396-11	BUTTON (DOL)		26	3-701-690-00	(UK)...LABEL (MADE IN JAPAN)	
9	*4-919-659-01	JOINT, POWER		27	4-920-813-01	WINDOW (B), CASSETTE	
10	4-914-396-01	BUTTON (POWER)		901	*1-622-523-11	PC BOARD, POWER AMPLIFIER	
11	4-914-396-21	BUTTON (TAPE)		902	*A-4410-505-A	(Canadian,AEP,UK)...MOUNTED PCB, MAIN	
12	4-914-396-31	BUTTON (CD)			*A-4410-515-A	(G-AEP).....MOUNTED PCB, MAIN	
13	4-914-396-41	BUTTON (TUNER)			*A-4410-544-A	(US).....MOUNTED PCB, MAIN	
14	4-914-396-51	BUTTON (PHONO)		903	1-622-665-11	PC BOARD, SUB	



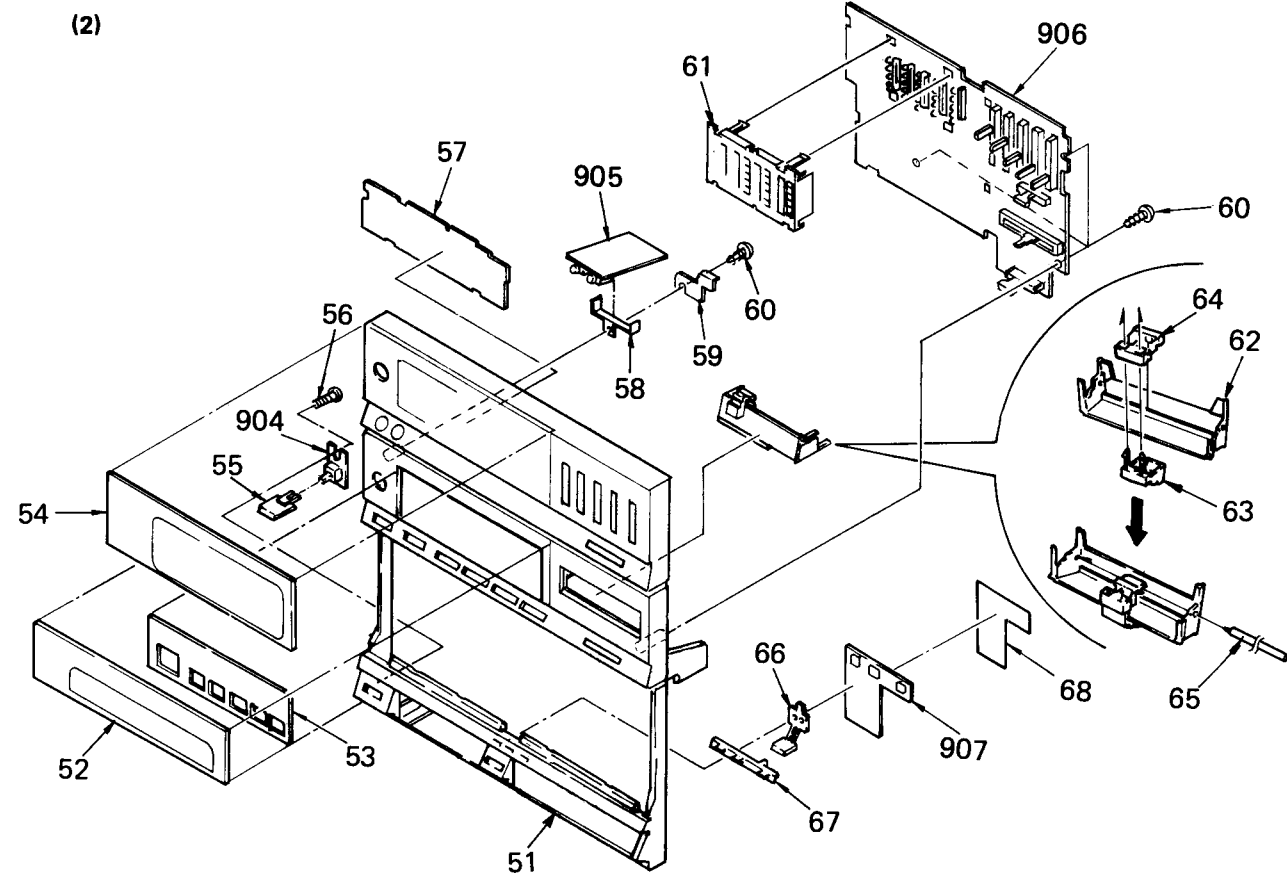
No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
51	X-4919-620-1	PANEL ASSY		63	4-919-639-01	KNOB, VOLUME	
52	4-919-660-11	PLATE (B), ORNAMENTAL		64	*4-919-658-01	JOINT, VOL	
53	4-914-397-21	PLATE (FUNCTION), INDICATION		65	*4-919-655-01	SHAFT, SLIDE	
54	4-919-661-11	PLATE (A), ORNAMENTAL		66	4-920-811-01	BUTTON, DUBBING	
55	4-920-810-01	BUTTON, DOLBY		67	4-919-698-01	INDICATOR	
56	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S		68	4-920-836-01	SHEET, INSULATING	
57	*4-919-653-01	SHEET (A), INDICATION		904	1-622-663-11	PC BOARD, SWITCH	
58	*4-919-656-01	BRACKET, HP		905	1-622-664-11	PC BOARD, JACK	
59	*4-920-831-01	REINFORCEMENT		906	*A-4375-317-A	(G-AEP).....MOUNTED PCB, CONTROL	
60	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S			*A-4375-318-A	(Canadian,AEP,UK)...MOUNTED PCB, CONTROL	
61	*4-919-657-01	HOUSE, SPECTRUM ANALYZER			*A-4375-328-A	(US).....MOUNTED PCB, CONTROL	
62	4-919-662-01	HOUSE, VOLUME		907	1-622-662-11	PC BOARD, DUBBING	

(3)

No.	Part No.	No.	Part No.
101	X-4902-	111	7-682-1
102	7-682-1	112	4-920-8
103	*4-920-8	113	4-920-8
104	7-685-1	114	4-920-8
105	9-911-8	115	4-920-8
106	*3-703-2	116	4-920-8
107	3-706-1	117	4-920-8
108	3-701-5	118	*3-701-8
109	*X-4919-	119	*3-683-6

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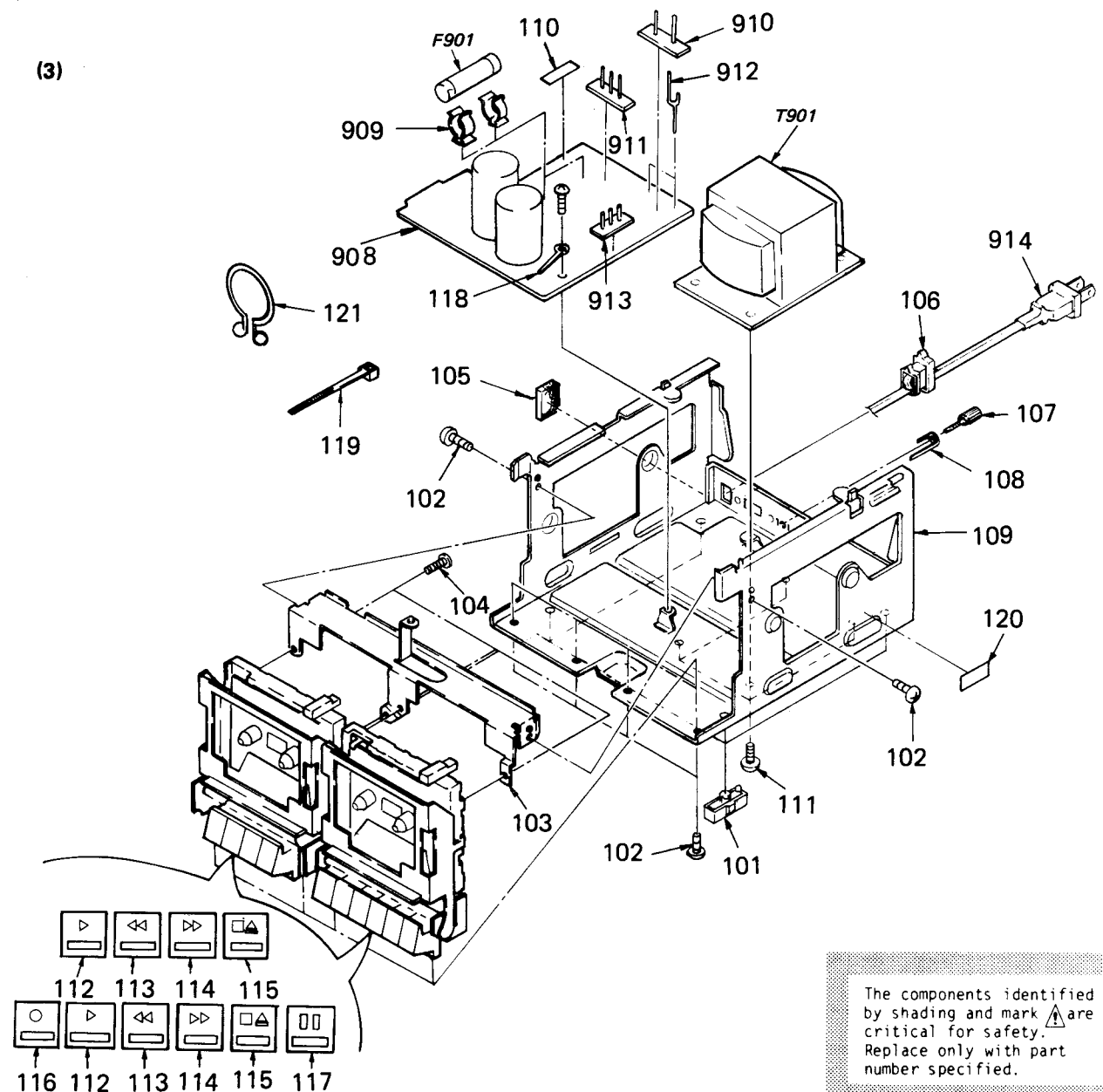
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


No.	Part No.	Description	Remarks
51	X-4919-620-1	PANEL ASSY	
52	4-919-660-11	PLATE (B), ORNAMENTAL	
53	4-914-397-21	PLATE (FUNCTION), INDICATION	
54	4-919-661-11	PLATE (A), ORNAMENTAL	
55	4-920-810-01	BUTTON, DOLBY	
56	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	
57	*4-919-653-01	SHEET (A), INDICATION	
58	*4-919-656-01	BRACKET, HP	
59	*4-920-831-01	REINFORCEMENT	
60	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
61	*4-919-657-01	HOUSE, SPECTRUM ANALYZER	
62	4-919-662-01	HOUSE, VOLUME	

No.	Part No.	Description	Remarks
63	4-919-639-01	KNOB, VOLUME	
64	*4-919-658-01	JOINT, VOL	
65	*4-919-655-01	SHAFT, SLIDE	
66	4-920-811-01	BUTTON, DUBBING	
67	4-919-698-01	INDICATOR	
68	4-920-836-01	SHEET, INSULATING	
904	1-622-663-11	PC BOARD, SWITCH	
905	1-622-664-11	PC BOARD, JACK	
906	*A-4375-317-A	(G-AEP).....MOUNTED PCB, CONTROL	
	*A-4375-318-A	(Canadian,AEP,UK)...MOUNTED PCB, CONTROL	
	*A-4375-328-A	(US).....MOUNTED PCB, CONTROL	
907	1-622-662-11	PC BOARD, DUBBING	

(3)



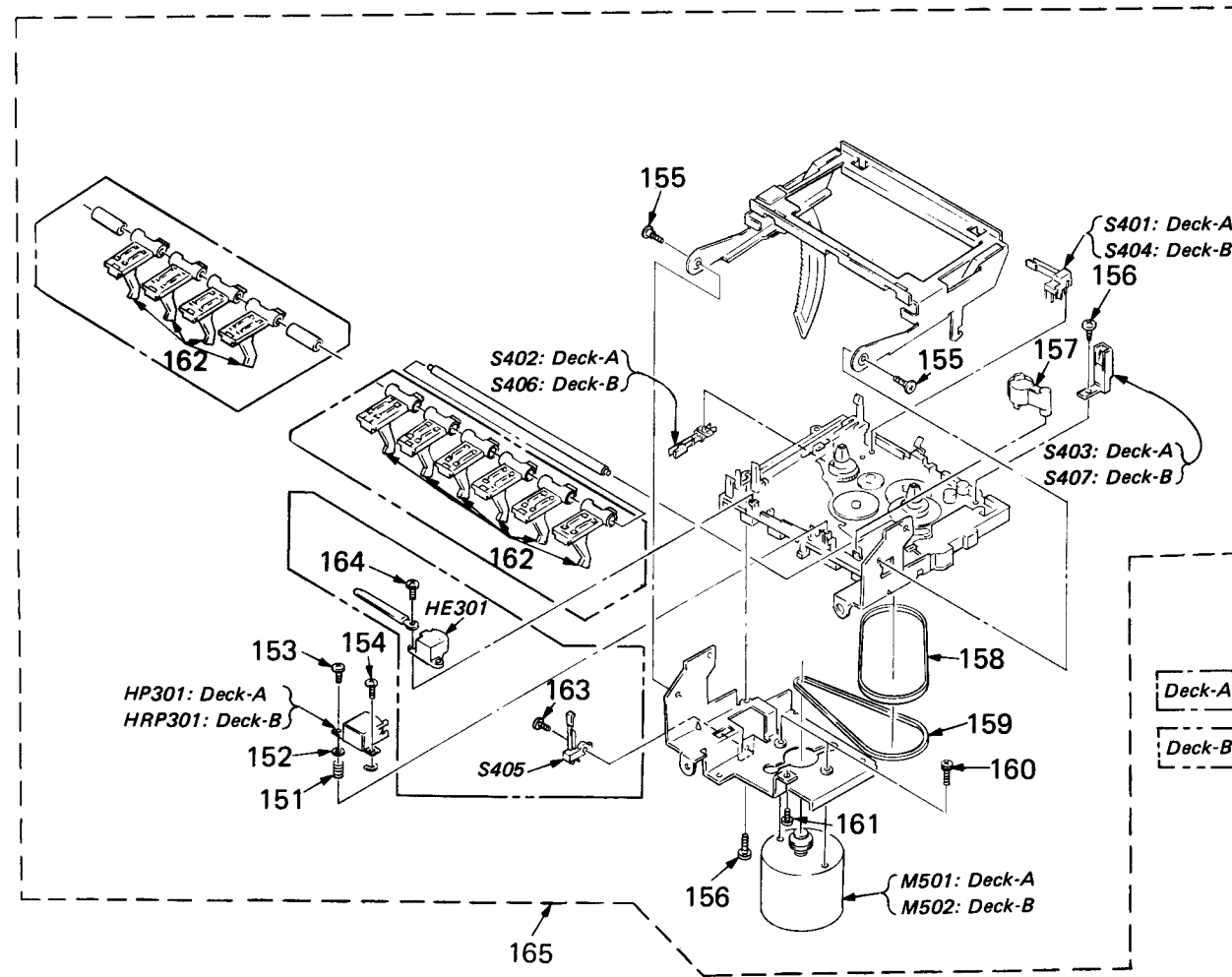
The components identified by shading and mark  are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remarks
101	X-4902-937-1	FOOT ASSY, RUBBER	
102	7-682-147-01	SCREW +BVTT 3X6 (S)	
103	*4-920-805-01	JOINT	
104	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	
105	9-911-840-XX	CUSHION	
106	*3-703-244-00	BUSHING (2104), CORD	
107	3-706-125-01	(G-AEP)...SCREW	
108	3-701-993-01	(G-AEP)...SPACER, TERMINAL	
109	*X-4919-622-2	CHASSIS ASSY	
110	*3-701-948-14	(AEP,G-AEP,UK)...LABEL, FUSE	
	*3-701-948-15	(US,Canadian)...LABEL, FUSE	
111	7-682-160-01	SCREW +BVTT 4X6 (S)	
112	4-920-814-01	BUTTON, CASSETTE	
113	4-920-814-11	BUTTON, CASSETTE	
114	4-920-814-21	BUTTON, CASSETTE	
115	4-920-814-31	BUTTON, CASSETTE	
116	4-920-814-41	BUTTON, CASSETTE	
117	4-920-814-51	BUTTON, CASSETTE	
118	*3-701-822-00	HOLDER, WIRE	
119	*3-683-631-01	CLAMP	

No.	Part No.	Description	Remarks
120	*3-701-030-00	LABEL, SERIAL NUMBER	
121	3-315-159-01	PURSE LOCK (DIA. 14)	
908	*1-622-524-11	PC BOARD, FUSE	
909	1-533-162-00	HOLDER, FUSE	
910	*1-535-139-21	(US,Canadian)...BASE POST 22MM (10MM PITCH) 2P	
	*1-535-140-00	(AEP,G-AEP,UK)...BASE POST 22MM (10MM PITCH) 3P	
911	*1-535-139-00	(US,Canadian)...BASE POST 22MM (10MM PITCH) 3P	
912	1-535-416-00	(AEP,G-AEP,UK)...TERMINAL	
913	*1-535-116-00	TERMINAL	
914	*1-558-942-11	(US,Canadian)...CORD, POWER	
	*1-558-944-11	(AEP,G-AEP)...CORD, POWER	
	*1-558-946-11	(UK)...CORD, POWER	
F901	*1-532-078-00	(AEP,G-AEP,UK)...FUSE, TIME-LAG	
F902	*1-532-744-11	(US,Canadian)...FUSE, GLASS TUBE	
T901	*1-448-924-11	(AEP,G-AEP,UK)...TRANSFORMER, POWER	
	*1-448-925-11	(US,Canadian)...TRANSFORMER, POWER	

SECTION 5 ELECTRICAL PARTS LIST

(4)




No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
151	4-894-955-01	C SPRING		165	A-2100-381-A	(DECK B)...MD ASSY (TCM-YM47CW-26)	
152	3-390-823-01	WASHER, F			A-2100-382-A	(DECK A)...MD ASSY (TCM-YM47CW-27)	
153	7-621-905-65	SCREW, TOTSU P 2X8		HE301	1-543-261-11	(DECK B)...HEAD, ERASE (886-01-24)	
154	7-621-255-15	SCREW +P 2X3		HP301	1-543-424-11	(DECK A)...HEAD, MAGNETIC (PB)	
155	3-392-121-01	SCREW, STEP		HRP301	1-543-424-11	(DECK B)...HEAD, MAGNETIC (REC/PB)	
156	7-685-133-19	SCREW +P 2.6X6 TYPE1		M501	X-3390-801-1	(DECK A)...MOTOR ASSY	
157	3-390-805-01	ROLLER ASSY, PINCH		M502	X-3390-801-1	(DECK B)...MOTOR ASSY	
158	3-390-807-01	BELT		S401	1-570-716-11	(DECK A)...SWITCH, LEAF (FWD)	
159	3-390-816-01	BELT, SQUARE		S402	1-570-715-11	(DECK A)...SWITCH, LEAF (MOTOR B+)	
160	7-628-253-90	SCREW +PS 2.6X4		S403	1-571-216-11	(DECK A)...SWITCH, LEAF (TAPE SELECT)	
161	7-682-147-01	SCREW +PTT 3X6 (S)		S404	1-570-716-11	(DECK B)...SWITCH, LEAF (FWD)	
162	4-894-971-01	BUTTON LEVER		S405	1-571-260-11	(DECK B)...SWITCH, LEAF (REC)	
163	3-392-102-01	SCREW, D PAN		S406	1-570-715-11	(DECK B)...SWITCH, LEAF (MOTOR B+)	
164	7-685-781-04	SCREW +PTT 2X4 (S)		S407	1-571-216-11	(DECK B)...SWITCH, LEAF (TAPE SELECT)	

NOTE:

- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.RESISTORS
All resistors are in ohms.
F : nonflammableCOILS
MMH : mH, UH : μHSEMICONDUCTORS
In each case, U : u, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC,
UPD...: μPD...

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS						
Ref.No.	Part No.	Description				
901	*1-622-523-11	PC BOARD, POWER AMPLIFIER				
902	*A-4410-505-A	(Canadian,AEP,UK)...MOUNTED PCB, MAIN				
	*A-4410-515-A	(G-AEP)...MOUNTED PCB, MAIN				
	*A-4410-544-A	(US)...MOUNTED PCB, MAIN				
903	1-622-665-11	PC BOARD, SUB				
904	1-622-663-11	PC BOARD, SWITCH				
905	1-622-664-11	PC BOARD, JACK				
906	*A-4375-317-A	(G-AEP)...MOUNTED PCB, CONTROL				
	*A-4375-318-A	(Canadian,AEP,UK)...MOUNTED PCB, CONTROL				
	*A-4375-328-A	(US)...MOUNTED PCB, CONTROL				
907	1-622-662-11	PC BOARD, DUBBING				
908	*1-622-524-11	PC BOARD, FUSE				
909	1-533-162-00	HOLDER, FUSE				
910	*1-535-139-21	(US,Canadian)...BASE POST 22MM (10MM PITCH) 2P				
	*1-535-140-00	(AEP,G-AEP,UK)...BASE POST 22MM (10MM PITCH) 3P				
911	*1-535-139-00	(US,Canadian)...BASE POST 22MM (10MM PITCH) 3P				
912	1-535-416-00	(AEP,G-AEP,UK)...TERMINAL				
913	*1-535-116-00	TERMINAL				
914	Δ 1-558-942-11	(US,Canadian)...CORD, POWER				
	Δ 1-558-944-11	(AEP,G-AEP)...CORD, POWER				
	Δ 1-558-946-11	(UK)...CORD, POWER				
BU501	1-464-796-11	OSCILLATION UNIT, BIAS				
C101	1-123-875-91	ELECT 10MF	20%	50V		
C102	1-162-217-31	CERAMIC 56PF	5%	50V		
C103	1-136-163-00	FILM 0.068MF	5%	50V		
C104	1-124-902-00	ELECT 0.47MF	20%	50V		
C105	1-136-156-00	FILM 0.018MF	5%	50V		
C106	1-124-463-00	ELECT 0.1MF	20%	50V		
C107	1-102-126-00	CERAMIC 0.0056MF	10%	50V		
C108	1-136-162-00	FILM 0.056MF	5%	50V		
C109	1-102-118-00	CERAMIC 0.0012MF	10%	50V		
C110	1-136-155-00	FILM 0.015MF	5%	50V		
C111	1-162-290-31	CERAMIC 470PF	10%	50V		
C112	1-161-377-00	CERAMIC 0.0047MF	20%	16V		
C113	1-162-215-31	CERAMIC 47PF	5%	50V		
C114	1-162-284-31	CERAMIC 150PF	10%	50V		
C115	1-124-925-11	ELECT 2.2MF	20%	50V		
C116	1-124-443-00	ELECT 100MF	20%	10V		
C117	1-124-443-00	ELECT 100MF	20%	10V		
C122	1-124-257-00	ELECT 2.2MF	20%	50V		
C124	1-162-294-31	CERAMIC 0.001MF	10%	50V		

ELECTRICAL PARTS						
Ref.No.	Part No.	Description				
C125	1-162-290-31	CERAMIC 470PF	10%	50V		
C127	1-130-480-00	MYLAR 0.0056MF	5%	50V		
C128	1-130-473-00	MYLAR 0.0015MF	5%	50V		
C129	1-123-617-00	ELECT 10MF	20%	16V		
C130	1-123-617-00	ELECT 10MF	20%	16V		
C131	1-161-379-00	CERAMIC 0.01MF	30%	16V		
C151	1-124-463-00	ELECT 0.1MF	20%	50V		
C152	1-162-294-31	CERAMIC 0.001MF	10%	50V		
C153	1-162-287-31	CERAMIC 270PF	10%	50V		
C154	1-162-282-31	CERAMIC 100PF	10%	50V		
C155	1-124-925-11	ELECT 2.2MF	20%	50V		
C157	1-123-875-91	ELECT 10MF	20%	50V		
C158	1-123-875-91	ELECT 10MF	20%	50V		
C159	1-124-463-00	ELECT 0.1MF	20%	50V		
C160	1-136-157-00	FILM 0.022MF	5%	50V		
C161	1-123-875-91	ELECT 10MF	20%	50V		
C162	1-136-158-00	FILM 0.027MF	5%	50V		
C163	1-102-126-00	CERAMIC 0.0056MF	10%	50V		
C164	1-123-875-91	ELECT 10MF	20%	50V		
C165	1-136-154-00	FILM 0.012MF	5%	50V		
C166	1-161-375-00	CERAMIC 0.0022MF	20%	16V		
C167	1-123-875-91	ELECT 10MF	20%	50V		
C168	1-102-122-00	CERAMIC 0.0027MF	10%	50V		
C169	1-162-291-31	CERAMIC 560PF	10%	50V		
C170	1-123-875-91	ELECT 10MF	20%	50V		
C171	1-162-294-31	CERAMIC 0.001MF	10%	50V		
C172	1-162-285-31	CERAMIC 180PF	10%	50V		
C173	1-123-875-91	ELECT 10MF	20%	50V		
C175	1-123-617-00	ELECT 10MF	20%	16V		
C176	1-123-617-00	ELECT 10MF	20%	16V		
C201	1-123-875-91	ELECT 10MF	20%	50V		
C202	1-162-217-31	CERAMIC 56PF	5%	50V		
C203	1-136-163-00	FILM 0.068MF	5%	50V		
C204	1-124-902-00	ELECT 0.47MF	20%	50V		
C205	1-136-156-00	FILM 0.018MF	5%	50V		
C206	1-124-463-00	ELECT 0.1MF	20%	50V		
C207	1-102-126-00	CERAMIC 0.0056MF	10%	50V		
C208	1-136-162-00	FILM 0.056MF	5%	50V		
C209	1-102-118-00	CERAMIC 0.0012MF	10%	50V		
C210	1-136-155-00	FILM 0.015MF	5%	50V		
C211	1-162-290-31	CERAMIC 470PF	10%	50V		
C212	1-161-377-00	CERAMIC 0.0047MF	20%	16V		
C213	1-162-215-31	CERAMIC 47PF	5%	50V		
C214	1-162-284-31	CERAMIC 150PF	10%	50V		
C215	1-124-925-11	ELECT 2.2MF	20%	50V		
C222	1-124-257-00	ELECT 2.2MF	20%	50V		

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C224	1-162-294-31	CERAMIC 0.001MF 10% 50V
C225	1-162-290-31	CERAMIC 470PF 10% 50V
C227	1-130-480-00	MYLAR 0.0056MF 5% 50V
C228	1-130-473-00	MYLAR 0.0015MF 5% 50V
C229	1-123-617-00	ELECT 10MF 20% 16V
C230	1-123-617-00	ELECT 10MF 20% 16V
C231	1-161-379-00	CERAMIC 0.01MF 30% 16V
C301	1-162-290-31	CERAMIC 470PF 10% 50V
C302	1-162-207-31	CERAMIC 22PF 5% 50V
C303	1-124-443-00	ELECT 100MF 20% 10V
C304	1-136-157-00	FILM 0.022MF 5% 50V
C305	1-136-157-00	FILM 0.022MF 5% 50V
C306	1-124-257-00	ELECT 2.2MF 20% 50V
C307	1-123-617-00	ELECT 10MF 20% 16V
C308	1-162-291-31	CERAMIC 560PF 10% 50V
C309	1-162-291-31	CERAMIC 22PF 5% 50V
C310	1-124-443-00	ELECT 100MF 20% 10V
C311	1-136-157-00	FILM 0.022MF 5% 50V
C312	1-136-157-00	FILM 0.022MF 5% 50V
C313	1-124-257-00	ELECT 2.2MF 20% 50V
C314	1-131-346-00	TANTALUM 0.68MF 10% 35V
C315	1-123-617-00	ELECT 10MF 20% 16V
C316	1-123-611-00	ELECT 1MF 20% 50V
C317	1-124-443-00	ELECT 100MF 20% 10V
C318	1-136-165-00	FILM 0.1MF 5% 50V
C319	1-136-153-00	FILM 0.01MF 5% 50V
C320	1-136-153-00	FILM 0.01MF 5% 50V
C321	1-130-479-00	MYLAR 0.0047MF 5% 50V
C322	1-123-617-00	ELECT 10MF 20% 16V
C323	1-123-902-00	ELECT 0.47MF 20% 50V
C324	1-136-153-00	FILM 0.01MF 5% 50V
C325	1-123-617-00	ELECT 10MF 20% 16V
C326	1-162-286-31	CERAMIC 220PF 10% 50V
C327	1-162-282-31	CERAMIC 100PF 10% 50V
C328	1-123-617-00	ELECT 10MF 20% 16V
C329	1-162-286-31	CERAMIC 220PF 10% 50V
C330	1-162-286-31	CERAMIC 220PF 10% 50V
C331	1-124-245-00	ELECT 4.7MF 20% 35V
C364	1-123-617-00	ELECT 10MF 20% 16V
C401	1-162-290-31	CERAMIC 470PF 10% 50V
C402	1-162-207-31	CERAMIC 22PF 5% 50V
C403	1-124-443-00	ELECT 100MF 20% 10V
C404	1-136-157-00	FILM 0.022MF 5% 50V
C405	1-136-157-00	FILM 0.022MF 5% 50V
C406	1-124-257-00	ELECT 2.2MF 20% 50V
C407	1-123-617-00	ELECT 10MF 20% 16V
C408	1-162-291-31	CERAMIC 560PF 10% 50V
C409	1-162-207-31	CERAMIC 22PF 5% 50V
C410	1-124-443-00	ELECT 100MF 20% 10V
C411	1-136-157-00	FILM 0.022MF 5% 50V
C412	1-136-157-00	FILM 0.022MF 5% 50V
C413	1-124-257-00	ELECT 2.2MF 20% 50V
C414	1-131-346-00	TANTALUM 0.68MF 10% 35V
C415	1-123-617-00	ELECT 10MF 20% 16V
C416	1-123-611-00	ELECT 1MF 20% 50V
C417	1-124-443-00	ELECT 100MF 20% 10V
C418	1-136-165-00	FILM 0.1MF 5% 50V
C419	1-136-153-00	FILM 0.01MF 5% 50V

ELECTRICAL PARTS


Ref.No.	Part No.	Description
C420	1-136-153-00	FILM 0.01MF 5% 50V
C421	1-130-479-00	MYLAR 0.0047MF 5% 50V
C422	1-123-617-00	ELECT 10MF 20% 16V
C423	1-123-902-00	ELECT 0.47MF 20% 50V
C424	1-136-153-00	FILM 0.01MF 5% 50V
C425	1-123-617-00	ELECT 10MF 20% 16V
C426	1-162-286-31	CERAMIC 220PF 10% 50V
C427	1-162-282-31	CERAMIC 100PF 10% 50V
C428	1-123-617-00	ELECT 10MF 20% 16V
C429	1-162-286-31	CERAMIC 220PF 10% 50V
C430	1-162-286-31	CERAMIC 220PF 10% 50V
C431	1-124-245-00	ELECT 4.7MF 20% 35V
C501	1-123-611-00	ELECT 1MF 20% 50V
C502	1-124-257-00	ELECT 2.2MF 20% 50V
C503	1-106-351-00	MYLAR 0.0022MF 10% 100V
C504	1-106-351-00	MYLAR 0.0022MF 10% 100V
C505	1-124-245-00	ELECT 4.7MF 20% 35V
C506	1-123-617-00	ELECT 10MF 20% 16V
C507	1-123-617-00	ELECT 10MF 20% 16V
C508	1-161-379-00	CERAMIC 0.01MF 30% 16V
C509	1-161-379-00	CERAMIC 0.01MF 30% 16V
C510	1-161-379-00	CERAMIC 0.01MF 30% 16V
C511	1-161-379-00	CERAMIC 0.01MF 30% 16V
C512	1-161-379-00	CERAMIC 0.01MF 30% 16V
C513	1-161-379-00	CERAMIC 0.01MF 30% 16V
C514	1-161-379-00	CERAMIC 0.01MF 30% 16V
C515	1-161-379-00	CERAMIC 0.01MF 30% 16V
C516	1-123-617-00	ELECT 10MF 20% 16V
C517	1-124-482-11	ELECT 33MF 20% 35V
C518	1-123-617-00	ELECT 10MF 20% 16V
C519	1-123-617-00	ELECT 10MF 20% 16V
C520	1-161-379-00	CERAMIC 0.01MF 30% 16V
C551	1-123-617-00	ELECT 10MF 20% 16V
C552	1-123-617-00	ELECT 10MF 20% 16V
C701	1-124-925-11	ELECT 2.2MF 20% 50V
C702	1-162-288-31	CERAMIC 330PF 10% 50V
C703	1-162-290-31	CERAMIC 470PF 10% 50V
C704	1-124-477-11	ELECT 47MF 20% 25V
C705	1-124-910-11	ELECT 47MF 20% 50V
C706	1-136-165-00	FILM 0.1MF 5% 50V
C707	1-123-875-91	ELECT 10MF 20% 50V
C708	1-124-443-00	ELECT 100MF 20% 10V
C709	1-136-165-00	(EXCEPT FOR G-AEP)...FILM 0.1MF 5% 50
C710	1-124-122-11	ELECT 100MF 20% 50V
C712	1-124-477-11	ELECT 47MF 20% 25V
C714	1-136-165-00	(G-AEP)...FILM 0.1MF 5% 50V
C716	1-124-482-11	ELECT 33MF 20% 35V
C751	1-124-925-11	ELECT 2.2MF 20% 50V
C752	1-162-217-31	CERAMIC 56PF 5% 50V
C753	1-162-282-31	CERAMIC 100PF 10% 50V
C756	1-124-925-11	ELECT 2.2MF 20% 50V
C758	1-124-657-00	ELECT 10MF 20% 50V
C759	1-124-463-00	ELECT 0.1MF 20% 50V
C770	1-124-463-00	ELECT 0.1MF 20% 50V
C801	1-124-925-11	ELECT 2.2MF 20% 50V
C802	1-162-288-31	CERAMIC 330PF 10% 50V
C803	1-162-290-31	CERAMIC 470PF 10% 50V
C804	1-124-477-11	ELECT 47MF 20% 25V

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C805	1-124-910-11	ELECT 47MF 20% 50V
C809	1-136-165-00	(EXCEPT FOR G-AEP)...FILM 0.1MF 5% 50V
C814	1-136-165-00	(G-AEP)...FILM 0.1MF 5% 50V
C851	1-124-925-11	ELECT 2.2MF 20% 50V
C852	1-162-217-31	CERAMIC 56PF 5% 50V
C853	1-162-282-31	CERAMIC 100PF 10% 50V
C856	1-124-925-11	ELECT 2.2MF 20% 50V
C870	1-124-463-00	ELECT 0.1MF 20% 50V
C901	1-136-171-00	FILM 0.33MF 5% 50V
C902	1-136-171-00	FILM 0.33MF 5% 50V
C903	1-124-362-00	ELECT 4700MF 20% 42V
C904	1-124-362-00	ELECT 4700MF 20% 42V
C906	1-101-004-00	CERAMIC 0.01MF 50V
C907	1-101-004-00	CERAMIC 0.01MF 50V
C908	1-124-563-11	(G-AEP)...ELECT 2200MF 20% 25V
C908	1-124-564-11	(EXCEPT FOR G-AEP) ...ELECT 4700MF 20% 25V
C909	1-124-563-11	(G-AEP)...ELECT 2200MF 20% 25V
C909	1-124-564-11	(EXCEPT FOR G-AEP) ...ELECT 4700MF 20% 25V
C910	1-123-617-00	ELECT 10MF 20% 16V
C911	1-123-617-00	ELECT 10MF 20% 16V
C912	1-123-875-91	(EXCEPT FOR US)...ELECT 10MF 20% 50V
C913	1-161-744-00	CERAMIC 0.01MF 400V
C915	1-123-617-00	ELECT 10MF 20% 16V
C916	1-123-617-00	ELECT 10MF 20% 16V
C917	1-124-207-00	ELECT 10MF 20% 50V
C8701	1-532-564-00	BREAKER, CIRCUIT
C8801	1-532-564-00	BREAKER, CIRCUIT
CNJ102	1-562-067-00	SOCKET, CONNECTOR 5P
CNP101*1	1-564-517-11	PLUG, CONNECTOR 2P
CNP201*1	1-564-518-21	PLUG, CONNECTOR 3P
CNP301*1	1-564-506-11	PLUG, CONNECTOR 3P
CNP302*1	1-564-509-11	PLUG, CONNECTOR 6P
CNP303*1	1-564-505-11	PLUG, CONNECTOR 2P
CNP304*1	1-560-060-00	PIN, CONNECTOR 2P
CNP501*1	1-564-509-11	PLUG, CONNECTOR 6P
CNP502*1	1-564-511-11	PLUG, CONNECTOR 8P
CNP503*1	1-564-519-11	PLUG, CONNECTOR 4P
CNP504*1	1-564-519-21	PLUG, CONNECTOR 4P
CNP505*1	1-560-060-00	PIN, CONNECTOR 2P
CNP705*1	1-564-518-11	PLUG, CONNECTOR 3P
CNP706*1	1-564-508-11	PLUG, CONNECTOR 5P
CNP707*1	1-564-517-21	PLUG, CONNECTOR 2P
CNP708*1	1-564-518-11	PLUG, CONNECTOR 3P
CNP801*1	1-564-336-00	PIN, CONNECTOR 2P
CNP802*1	1-564-340-00	PIN, CONNECTOR 6P
CNP803*1	1-564-336-00	PIN, CONNECTOR 2P
CNP804*1	1-564-339-61	PIN, CONNECTOR 5P
CNP805*1	1-564-341-11	PIN, CONNECTOR 7P
CNP806*1	1-564-498-11	PIN, CONNECTOR 5P
CNP901	1-566-211-11	PIN, CONNECTOR 4P
D101	8-719-301-60	LED SEL2910A-C
D102	8-719-301-43	LED SEL2410E-C
D103	8-719-301-43	LED SEL2410E-C
D104	8-719-301-43	LED SEL2410E-C
D105	8-719-301-43	LED SEL2410E-C
D111	8-719-302-95	LED SEL2710W
D112	8-719-302-95	LED SEL2710W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D113	8-719-302-95	LED SEL2710W
D114	8-719-301-52	LED SEL2810A-C
D115	8-719-301-52	LED SEL2810A-C
D121	8-719-302-95	LED SEL2710W
D122	8-719-302-95	LED SEL2710W
D123	8-719-302-95	LED SEL2710W
D124	8-719-301-52	LED SEL2810A-C
D125	8-719-301-52	LED SEL2810A-C
D131	8-719-302-95	LED SEL2710W
D132	8-719-302-95	LED SEL2710W
D133	8-719-302-95	LED SEL2710W
D134	8-719-301-52	LED SEL2810A-C
D135	8-719-301-52	LED SEL2810A-C
D141	8-719-302-95	LED SEL2710W
D142	8-719-302-95	LED SEL2710W
D143	8-719-302-95	LED SEL2710W
D144	8-719-301-52	LED SEL2810A-C
D145	8-719-301-52	LED SEL2810A-C
D151	8-719-302-95	LED SEL2710W
D152	8-719-302-95	LED SEL2710W
D153	8-719-302-95	LED SEL2710W
D154	8-719-301-52	LED SEL2810A-C
D155	8-719-301-52	LED SEL2810A-C
D501	8-719-911-19	DIODE 1SS119
D502	8-719-910-62	ZENER DIODE HZ6A1L
D503	8-719-910-62	ZENER DIODE HZ6A1L
D504	8-719-910-62	ZENER DIODE HZ6A1L
D505	8-719-913-36	LED PR222S-B1
D506	8-719-913-36	LED PR222S-B1
D507	8-719-913-36	LED PR222S-B1
D508	8-719-911-19	DIODE 1SS119
D509	8-719-911-19	DIODE 1SS119
D510	8-719-911-19	DIODE 1SS119
D511	8-719-911-19	DIODE 1SS119
D512	8-719-910-65	ZENER DIODE HZ6B2L
D513	8-719-911-19	DIODE 1SS119
D551	8-719-911-19	DIODE 1SS119
D552	8-719-911-19	DIODE 1SS119
D701	8-719-200-47	ZENER DIODE 10YD4.5B
D702	8-719-940-76	DIODE 1SS132
D703	8-719-940-76	DIODE 1SS132
D751	8-719-940-76	DIODE 1SS132
D801	8-719-200-47	ZENER DIODE 10YD4.5B
D901	8-719-302-36	DIODE RBV-402-01
D902	8-719-200-77	(EXCEPT FOR US)...DIODE 10E2N
D904	8-719-200-82	DIODE 11ES2
D905	8-719-200-82	DIODE 11ES2
D906	8-719-200-82	DIODE 11ES2
D907	8-719-200-82	DIODE 11ES2
D908	8-719-200-77	DIODE 10E2N
D909	8-719-200-77	DIODE 10E2N
D910	8-719-200-77	DIODE 10E2N
D911	8-719-200-29	DIODE 11DQ04
D912	8-719-911-19	DIODE 1SS119
D914	8-719-200-29	DIODE 11DQ04
D951	8-719-911-19	DIODE 1SS119
D952	8-719-911-19	DIODE 1SS119
D953	8-719-911-19	DIODE 1SS119

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D954	8-719-911-19	DIODE 1SS119
D955	8-719-911-19	DIODE 1SS119
F001	1-532-783-21	(US,Canadian)....FUSE, MICRO (SECONDARY)
F002	1-532-783-21	(US).....FUSE, MICRO (SECONDARY)
F901	1-532-078-00	(AEP,G-AEP,UK)....FUSE, TIME-LAG
F901	1-532-744-11	(US,Canadian)....FUSE, GLASS TUBE
HE301	1-543-261-11	(DECK B)...HEAD, ERASE (886-01-24)
HP301	1-543-424-11	(DECK A)...HEAD, MAGNETIC (PB)
HRP301	1-543-424-11	(DECK B)...HEAD, MAGNETIC (REC/PB)
IC101	8-759-600-02	IC M5218L
IC102	8-759-602-04	IC M5226P
IC103	8-759-600-02	IC M5218L
IC151	8-759-600-02	IC M5218L
IC161	8-759-917-42	IC IR2E31A
IC162	8-759-917-42	IC IR2E31A
IC163	8-759-917-42	IC IR2E31A
IC164	8-759-917-42	IC IR2E31A
IC165	8-759-917-42	IC IR2E31A
IC202	8-759-602-04	IC M5226P
IC301	8-759-106-61	IC UPC4570HA
IC302	8-759-106-61	IC UPC4570HA
IC303	8-752-031-83	IC CXAL101P
IC304	8-759-601-43	IC M4066BP
IC401	8-759-600-02	IC M5218L
IC501	8-759-112-88	IC UPD65005C-112
IC701	8-749-900-96	IC STK4142MK2
IC751	8-759-106-61	IC UPC4570HA
IC901	8-759-604-84	IC M5F7806
IC902	8-759-604-85	IC M5F7906
J101	1-507-974-11	JACK (MIC)
J102	1-507-908-11	JACK, PIN 4P (PHONO/CD)
J701	1-563-951-11	JACK (PHONES)
L301	1-410-774-11	MICRO INDUCTOR 8.2MMH
L302	1-410-772-11	MICRO INDUCTOR 5.6MMH
L303	1-410-779-21	MICRO INDUCTOR 22MMH
L401	1-410-774-11	MICRO INDUCTOR 8.2MMH
L402	1-410-772-11	MICRO INDUCTOR 5.6MMH
L403	1-410-779-21	MICRO INDUCTOR 22MMH
L501	1-408-088-00	MICRO INDUCTOR 220UH
L901	1-408-117-00	MICRO INDUCTOR 10UH
L902	1-408-117-00	MICRO INDUCTOR 10UH
M501	X-3390-801-1	(DECK A)...MOTOR ASSY
M502	X-3390-801-1	(DECK B)...MOTOR ASSY
Q301	8-729-806-28	TRANSISTOR 2SC3402
Q302	8-729-806-28	TRANSISTOR 2SC3402
Q303	8-729-806-28	TRANSISTOR 2SC3402
Q304	8-729-806-28	TRANSISTOR 2SC3402
Q305	8-729-806-28	TRANSISTOR 2SC3402
Q306	8-729-806-28	TRANSISTOR 2SC3402
Q307	8-729-806-28	TRANSISTOR 2SC3402
Q308	8-729-806-28	TRANSISTOR 2SC3402
Q310	8-729-600-27	TRANSISTOR 2SC634SP
Q311	8-729-806-28	TRANSISTOR 2SC3402
Q401	8-729-806-28	TRANSISTOR 2SC3402
Q402	8-729-806-28	TRANSISTOR 2SC3402

ELECTRICAL PARTS


Ref.No.	Part No.	Description
Q403	8-729-806-28	TRANSISTOR 2SC3402
Q404	8-729-806-28	TRANSISTOR 2SC3402
Q405	8-729-806-28	TRANSISTOR 2SC3402
Q406	8-729-806-28	TRANSISTOR 2SC3402
Q407	8-729-806-28	TRANSISTOR 2SC3402
Q408	8-729-806-28	TRANSISTOR 2SC3402
Q410	8-729-600-27	TRANSISTOR 2SC634SP
Q411	8-729-806-28	TRANSISTOR 2SC3402
Q501	8-729-102-03	TRANSISTOR 2SD1020
Q502	8-729-806-28	TRANSISTOR 2SC3402
Q503	8-729-806-28	TRANSISTOR 2SC3402
Q504	8-729-806-28	TRANSISTOR 2SC3402
Q505	8-729-600-27	TRANSISTOR 2SC634SP
Q506	8-729-600-27	TRANSISTOR 2SC634SP
Q507	8-729-806-28	TRANSISTOR 2SC3402
Q508	8-729-806-28	TRANSISTOR 2SC3402
Q509	8-729-806-28	TRANSISTOR 2SC3402
Q510	8-729-806-28	TRANSISTOR 2SC3402
Q511	8-729-806-28	TRANSISTOR 2SC3402
Q513	8-729-117-43	TRANSISTOR 2SD774
Q514	8-729-117-43	TRANSISTOR 2SD774
Q515	8-729-117-54	TRANSISTOR 2SA1175
Q516	8-729-117-54	TRANSISTOR 2SA1175
Q517	8-729-806-28	TRANSISTOR 2SC3402
Q518	8-729-806-28	TRANSISTOR 2SC3402
Q551	8-729-600-27	TRANSISTOR 2SC634SP
Q552	8-729-600-27	TRANSISTOR 2SC634SP
Q553	8-729-806-28	TRANSISTOR 2SC3402
Q554	8-729-117-54	TRANSISTOR 2SA1175
Q701	8-729-600-27	TRANSISTOR 2SC634SP
Q702	8-729-117-54	TRANSISTOR 2SA1175
Q703	8-729-117-54	TRANSISTOR 2SA1175
Q751	8-729-600-27	TRANSISTOR 2SC634SP
Q801	8-729-600-27	TRANSISTOR 2SC634SP
Q802	8-729-117-54	TRANSISTOR 2SA1175
Q851	8-729-600-27	TRANSISTOR 2SC634SP
Q901	8-729-107-25	TRANSISTOR 2SD1585-L
R101	1-249-425-11	CARBON 4.7K 5% 1/6W
R102	1-249-433-11	CARBON 22K 5% 1/6W
R103	1-249-438-11	CARBON 56K 5% 1/6W
R104	1-249-438-11	CARBON 56K 5% 1/6W
R105	1-249-425-11	CARBON 4.7K 5% 1/6W
R106	1-249-428-11	CARBON 8.2K 5% 1/6W
R107	1-249-417-11	CARBON 1K 5% 1/6W
R108	1-249-401-11	CARBON 47 5% 1/6W
R109	1-249-401-11	CARBON 47 5% 1/6W
R110	1-249-439-11	CARBON 68K 5% 1/6W
R121	1-249-441-11	CARBON 100K 5% 1/6W
R122	1-249-417-11	CARBON 1K 5% 1/6W
R123	1-247-891-00	CARBON 330K 5% 1/6W
R124	1-247-855-00	CARBON 10K 5% 1/6W
R125	1-249-438-11	CARBON 56K 5% 1/6W
R127	1-215-487-00	CARBON 560K 5% 1/6W
R128	1-249-437-11	CARBON 47K 5% 1/6W
R129	1-249-423-11	CARBON 3.3K 5% 1/6W
R130	1-249-437-11	CARBON 47K 5% 1/6W
R131	1-249-419-11	CARBON 1.5K 5% 1/6W
R151	1-247-855-00	CARBON 10K 5% 1/6W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R152	1-249-417-11	CARBON 1K 5% 1/6W
R153	1-247-855-00	CARBON 10K 5% 1/6W
R154	1-249-417-11	CARBON 1K 5% 1/6W
R155	1-249-439-11	CARBON 68K 5% 1/6W
R156	1-215-460-00	CARBON 43K 5% 1/6W
R157	1-247-855-00	CARBON 10K 5% 1/6W
R158	1-249-441-11	CARBON 100K 5% 1/6W
R160	1-247-855-00	CARBON 10K 5% 1/6W
R161	1-249-441-11	CARBON 100K 5% 1/6W
R163	1-247-855-00	CARBON 10K 5% 1/6W
R164	1-249-441-11	CARBON 100K 5% 1/6W
R166	1-247-855-00	CARBON 10K 5% 1/6W
R167	1-249-441-11	CARBON 100K 5% 1/6W
R169	1-247-855-00	CARBON 10K 5% 1/6W
R170	1-249-441-11	CARBON 100K 5% 1/6W
R172	1-249-410-11	CARBON 270 5% 1/6W
R173	1-249-410-11	CARBON 270 5% 1/6W
R174	1-247-855-00	CARBON 10K 5% 1/6W
R176	1-249-434-11	CARBON 27K 5% 1/6W
R201	1-249-425-11	CARBON 4.7K 5% 1/6W
R202	1-249-433-11	CARBON 22K 5% 1/6W
R203	1-249-438-11	CARBON 56K 5% 1/6W
R204	1-249-438-11	CARBON 56K 5% 1/6W
R205	1-249-425-11	CARBON 4.7K 5% 1/6W
R206	1-249-428-11	CARBON 8.2K 5% 1/6W
R207	1-249-417-11	CARBON 1K 5% 1/6W
R210	1-249-439-11	CARBON 68K 5% 1/6W
R221	1-249-441-11	CARBON 100K 5% 1/6W
R222	1-249-417-11	CARBON 1K 5% 1/6W
R223	1-247-891-00	CARBON 330K 5% 1/6W
R224	1-247-855-00	CARBON 10K 5% 1/6W
R225	1-249-438-11	CARBON 56K 5% 1/6W
R227	1-215-487-00	CARBON 560K 5% 1/6W
R228	1-249-437-11	CARBON 47K 5% 1/6W
R229	1-249-423-11	CARBON 3.3K 5% 1/6W
R230	1-249-437-11	CARBON 47K 5% 1/6W
R231	1-249-419-11	CARBON 1.5K 5% 1/6W
R276	1-249-434-11	CARBON 27K 5% 1/6W
R301	1-247-883-00	CARBON 150K 5% 1/6W
R302	1-247-883-00	CARBON 150K 5% 1/6W
R303	1-247-887-00	CARBON 220K 5% 1/6W
R304	1-247-849-00	CARBON 5.6K 5% 1/6W
R305	1-249-422-11	CARBON 2.7K 5% 1/6W
R306	1-249-421-11	CARBON 2.2K 5% 1/6W
R307	1-247-855-00	CARBON 10K 5% 1/6W
R308	1-247-883-00	CARBON 150K 5% 1/6W
R309	1-247-883-00	CARBON 150K 5% 1/6W
R310	1-247-887-00	CARBON 220K 5% 1/6W
R311	1-247-849-00	CARBON 5.6K 5% 1/6W
R312	1-249-422-11	CARBON 2.7K 5% 1/6W
R313	1-249-421-11	CARBON 2.2K 5% 1/6W
R314	1-247-855-00	CARBON 10K 5% 1/6W
R316	1-249-405-11	CARBON 100 5% 1/6W
R317	1-247-849-00	CARBON 5.6K 5% 1/6W
R318	1-249-417-11	CARBON 1K 5% 1/6W
R319	1-247-887-00	CARBON 220K 5% 1/6W
R320	1-247-887-00	CARBON 220K 5% 1/6W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R321	1-249-439-11	CARBON 68K 5% 1/6W
R322	1-247-855-00	CARBON 10K 5% 1/6W
R323	1-249-433-11	CARBON 22K 5% 1/6W
R324	1-249-430-11	CARBON 12K 5% 1/6W
R325	1-249-402-11	CARBON 56 5% 1/6W
R326	1-249-423-11	CARBON 3.3K 5% 1/6W
R327	1-249-430-11	CARBON 12K 5% 1/6W
R328	1-249-423-11	CARBON 3.3K 5% 1/6W
R329	1-249-411-11	CARBON 330 5% 1/6W
R330	1-247-855-00	CARBON 10K 5% 1/6W
R331	1-247-855-00	CARBON 10K 5% 1/6W
R332	1-249-435-11	CARBON 33K 5% 1/6W
R333	1-249-435-11	CARBON 33K 5% 1/6W
R334	1-247-855-00	CARBON 10K 5% 1/6W
R335	1-249-427-11	CARBON 6.8K 5% 1/6W
R336	1-249-441-11	CARBON 100K 5% 1/6W
R337	1-249-418-11	CARBON 1.2K 5% 1/6W
R338	1-249-405-11	CARBON 100 5% 1/6W
R339	1-247-859-00	CARBON 15K 5% 1/6W
R365	1-249-416-11	CARBON 820 5% 1/6W
R401	1-247-883-00	CARBON 150K 5% 1/6W
R402	1-247-883-00	CARBON 150K 5% 1/6W
R403	1-247-887-00	CARBON 220K 5% 1/6W
R404	1-247-849-00	CARBON 5.6K 5% 1/6W
R405	1-249-422-11	CARBON 2.7K 5% 1/6W
R406	1-249-421-11	CARBON 2.2K 5% 1/6W
R407	1-247-855-00	CARBON 10K 5% 1/6W
R408	1-247-883-00	CARBON 150K 5% 1/6W
R409	1-247-883-00	CARBON 150K 5% 1/6W
R410	1-247-887-00	CARBON 220K 5% 1/6W
R411	1-247-849-00	CARBON 5.6K 5% 1/6W
R412	1-249-422-11	CARBON 2.7K 5% 1/6W
R413	1-249-421-11	CARBON 2.2K 5% 1/6W
R414	1-247-855-00	CARBON 10K 5% 1/6W
R416	1-249-405-11	CARBON 100 5% 1/6W
R417	1-247-849-00	CARBON 5.6K 5% 1/6W
R418	1-249-417-11	CARBON 1K 5% 1/6W
R419	1-247-887-00	CARBON 220K 5% 1/6W
R420	1-247-887-00	CARBON 220K 5% 1/6W
R421	1-249-439-11	CARBON 68K 5% 1/6W
R422	1-247-855-00	CARBON 10K 5% 1/6W
R423	1-249-433-11	CARBON 22K 5% 1/6W
R424	1-249-430-11	CARBON 12K 5% 1/6W
R425	1-249-402-11	CARBON 56 5% 1/6W
R426	1-249-423-11	CARBON 3.3K 5% 1/6W
R427	1-249-430-11	CARBON 12K 5% 1/6W
R428	1-249-423-11	CARBON 3.3K 5% 1/6W
R429	1-249-411-11	CARBON 330 5% 1/6W
R430	1-247-855-00	CARBON 10K 5% 1/6W
R431	1-247-855-00	CARBON 10K 5% 1/6W
R432	1-249-435-11	CARBON 33K 5% 1/6W
R433	1-249-435-11	CARBON 33K 5% 1/6W
R434	1-247-855-00	CARBON 10K 5% 1/6W
R435	1-249-427-11	CARBON 6.8K 5% 1/6W
R436	1-249-441-11	CARBON 100K 5% 1/6W
R437	1-249-418-11	CARBON 1.2K 5% 1/6W
R438	1-249-405-11	CARBON 100 5% 1/6W

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R339	1-247-859-00	CARBON	15K	5%	1/6W
R502	1-249-416-11	CARBON	820	5%	1/6W
R504	1-249-419-11	CARBON	1.5K	5%	1/6W
R505	1-249-425-11	CARBON	4.7K	5%	1/6W
R506	1-247-855-00	CARBON	10K	5%	1/6W
R507	1-249-441-11	CARBON	100K	5%	1/6W
R508	1-249-437-11	CARBON	47K	5%	1/6W
R509	1-247-855-00	CARBON	10K	5%	1/6W
R510	1-247-855-00	CARBON	10K	5%	1/6W
R511	1-249-437-11	CARBON	47K	5%	1/6W
R513	1-247-855-00	CARBON	10K	5%	1/6W
R514	1-249-427-11	CARBON	6.8K	5%	1/6W
R515	1-249-437-11	CARBON	47K	5%	1/6W
R517	1-249-421-11	CARBON	2.2K	5%	1/6W
R518	1-249-414-11	CARBON	560	5%	1/6W
R519	1-249-414-11	CARBON	560	5%	1/6W
R520	1-249-414-11	CARBON	560	5%	1/6W
R521	1-249-417-11	CARBON	1K	5%	1/6W
R522	1-249-421-11	CARBON	2.2K	5%	1/6W
R523	1-249-421-11	CARBON	2.2K	5%	1/6W
R524	1-249-425-11	CARBON	4.7K	5%	1/6W
R525	1-249-441-11	CARBON	100K	5%	1/6W
R526	1-249-441-11	CARBON	100K	5%	1/6W
R527	1-249-433-11	CARBON	22K	5%	1/6W
R528	1-249-433-11	CARBON	22K	5%	1/6W
R529	1-249-433-11	CARBON	22K	5%	1/6W
R530	1-249-408-11	CARBON	180	5%	1/6W
R531	1-249-408-11	CARBON	180	5%	1/6W
R532	1-249-420-11	CARBON	1.8K	5%	1/6W
R533	1-249-420-11	CARBON	1.8K	5%	1/6W
R535	1-249-405-11	CARBON	100	5%	1/6W
R536	1-249-405-11	CARBON	100	5%	1/6W
R537	1-247-855-00	CARBON	10K	5%	1/6W
R538	1-249-425-11	CARBON	4.7K	5%	1/6W
R539	1-249-425-11	CARBON	4.7K	5%	1/6W
R540	1-249-417-11	CARBON	1K	5%	1/6W
R541	1-249-417-11	CARBON	1K	5%	1/6W
R542	1-249-441-11	CARBON	100K	5%	1/6W
R550	1-215-460-00	CARBON	43K	5%	1/6W
R551	1-249-414-11	CARBON	560	5%	1/6W
R552	1-249-437-11	CARBON	47K	5%	1/6W
R553	1-249-425-11	CARBON	4.7K	5%	1/6W
R554	1-249-417-11	CARBON	1K	5%	1/6W
R555	1-202-471-00	SOLID	4.7M	5%	1/4W
R701	1-249-421-11	CARBON	2.2K	5%	1/6W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R702	1-249-438-11	CARBON	56K	5%	1/6W
R703	1-249-416-11	CARBON	820	5%	1/6W
R704	1-249-438-11	CARBON	56K	5%	1/6W
R705	1-247-752-11	CARBON	1K	5%	1/2W F
R706	1-212-881-00	FUSIBLE	100	5%	1/4W F
R707	1-247-752-11	CARBON	1K	5%	1/2W F
R708	1-247-752-11	CARBON	1K	5%	1/2W F
R709	1-249-425-11	CARBON	4.7K	5%	1/6W
R710	1-249-409-11	CARBON	220	5%	1/6W
R711	1-249-425-11	CARBON	4.7K	5%	1/6W
R712	1-249-425-11	CARBON	4.7K	5%	1/6W
R713	1-247-887-00	CARBON	220K	5%	1/6W
R714	1-212-958-00	FUSIBLE	10	5%	1/2W F
R715	1-247-855-00	CARBON	10K	5%	1/6W
R716	1-247-855-00	CARBON	10K	5%	1/6W
R717	1-249-421-11	CARBON	2.2K	5%	1/6W
R718	1-249-419-11	CARBON	1.5K	5%	1/6W
R719	1-212-958-00	(G-AEP)...FUSIBLE	10	5%	1/2W F
R723	1-247-747-11	CARBON	470	5%	1/2W
R730	1-212-958-00	FUSIBLE	10	5%	1/2W F
R751	1-249-417-11	CARBON	1K	5%	1/6W
R752	1-249-438-11	CARBON	56K	5%	1/6W
R753	1-247-855-00	CARBON	10K	5%	1/6W
R754	1-249-434-11	CARBON	27K	5%	1/6W
R756	1-249-441-11	CARBON	100K	5%	1/6W
R758	1-247-895-00	CARBON	470K	5%	1/6W
R759	1-249-428-11	CARBON	8.2K	5%	1/6W
R760	1-249-414-11	CARBON	560	5%	1/6W
R761	1-249-441-11	CARBON	100K	5%	1/6W
R762	1-247-855-00	CARBON	10K	5%	1/6W
R763	1-215-493-00	CARBON	1M	5%	1/6W
R764	1-247-855-00	CARBON	10K	5%	1/6W
R770	1-249-423-11	CARBON	3.3K	5%	1/6W
R801	1-249-421-11	CARBON	2.2K	5%	1/6W
R802	1-249-438-11	CARBON	56K	5%	1/6W
R803	1-249-416-11	CARBON	820	5%	1/6W
R804	1-249-438-11	CARBON	56K	5%	1/6W
R805	1-247-752-11	CARBON	1K	5%	1/2W F
R813	1-247-747-11	CARBON	470	5%	1/2W
R814	1-212-958-00	FUSIBLE	10	5%	1/2W F
R815	1-247-855-00	CARBON	10K	5%	1/6W
R817	1-249-421-11	CARBON	2.2K	5%	1/6W
R818	1-249-419-11	CARBON	1.5K	5%	1/6W
R819	1-212-958-00	(G-AEP)...FUSIBLE	10	5%	1/2W
R851	1-249-417-11	CARBON	1K	5%	1/6W

ELECTRICAL PARTS


Ref.No.	Part No.	Description			
R852	1-249-438-11	CARBON	56K	5%	1/6W
R853	1-247-855-00	CARBON	10K	5%	1/6W
R854	1-249-434-11	CARBON	27K	5%	1/6W
R856	1-249-441-11	CARBON	100K	5%	1/6W
R858	1-247-895-00	CARBON	470K	5%	1/6W
R859	1-249-428-11	CARBON	8.2K	5%	1/6W
R870	1-249-423-11	CARBON	3.3K	5%	1/6W
R902	1-249-429-11	(EXCEPT FOR US)...CARBON	10K	5%	1/6W
R903	1-212-369-00	METAL OXIDE	5.6	5%	1W F
R904	1-212-369-00	METAL OXIDE	5.6	5%	1W F
R915	1-202-725-11	(US,Canadian)...RES.COMPOSITION	3.3M	5%	1/2W
RV101	1-237-655-11	RES, VAR, SLIDE	250K/250K		
RV102	1-237-655-11	RES, VAR, SLIDE	250K/250K		
RV103	1-237-655-11	RES, VAR, SLIDE	250K/250K		
RV104	1-237-655-11	RES, VAR, SLIDE	250K/250K		
RV105	1-237-655-11	RES, VAR, SLIDE	250K/250K		
RV106	1-237-652-11	RES, VAR, SLIDE	50K/50K		
RV107	1-237-653-11	RES, VAR, SLIDE	100K		
RV151	1-237-654-11	RES, VAR, SLIDE	50K		
RV301	1-230-504-11	RES, ADJ, CARBON	220		
RV302	1-230-504-11	RES, ADJ, CARBON	220		
RV303	1-230-630-11	RES, ADJ, CARBON	10K		
RV304	1-228-997-00	RES, ADJ, CARBON	100K		
RV401	1-230-504-11	RES, ADJ, CARBON	220		
RV402	1-230-504-11	RES, ADJ, CARBON	220		
RV403	1-230-630-11	RES, ADJ, CARBON	10K		
RV404	1-228-997-00	RES, ADJ, CARBON	100K		
RV501	1-228-991-00	RES, ADJ, CARBON	2.2K		
RV502	1-228-990-00	RES, ADJ, CARBON	1K		
RV503	1-228-991-00	RES, ADJ, CARBON	2.2K		
RV504	1-230-627-11	RES, ADJ, CARBON	1K		
RY501	1-515-608-11	RELAY			


ELECTRICAL PARTS

Ref.No.	Part No.	Description
S101	1-571-045-11	SWITCH, PUSH (4 KEY)(FUNCTION)
S401	1-570-716-11	(DECK A)...SWITCH, LEAF (FWD)
S402	1-570-715-11	(DECK A)...SWITCH, LEAF (MOTOR B+)
S403	1-571-216-11	(DECK A)...SWITCH, LEAF (TAPE SELECT)
S404	1-570-716-11	(DECK B)...SWITCH, LEAF (FWD)
S405	1-571-260-11	(DECK B)...SWITCH, LEAF (REC)
S406	1-570-715-11	(DECK B)...SWITCH, LEAF (MOTOR B+)
S407	1-571-216-11	(DECK B)...SWITCH, LEAF (TAPE SELECT)
S501	1-516-870-00	SWITCH, SLIDE (ISS)
S502	1-554-419-21	SWITCH, PUSH (1 KEY)(DOLBY NR)
S503	1-554-371-00	SWITCH, TACT (DUBBING SPEED)
S701	1-554-261-00	SWITCH, PUSH (1 KEY) (DOL)
S901	1-553-318-00	SWITCH, PUSH (AC POWER)(1 KEY)
S902	1-570-822-11	SWITCH, LEAF (DC POWER)
T901	1-448-924-11	(AEP,G-AEP,UK)...TRANSFORMER, POWER
T901	1-448-925-11	(US,Canadian)...TRANSFORMER, POWER
TB701	1-536-705-00	TERMINAL BOARD (SP)
TB901	*1-535-139-00	BASE POST 22MM (10MM PITCH) 2P
TB902	*1-535-116-00	TERMINAL

ACCESSORY & PACKING MATERIAL

201	4-919-627-01	CUSHION, LOWER
202	4-919-628-01	CUSHION, UPPER
203	4-920-151-01	SHEET, PROTECTION

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

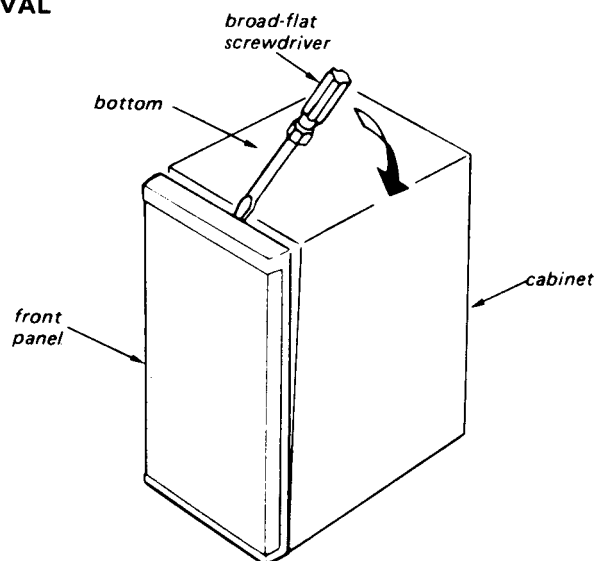
The components identified by shading and mark  are critical for safety. Replace only with part number specified.

FH-209W
FH-203
FH-205W

SPEAKER SYSTEM [APM-209]

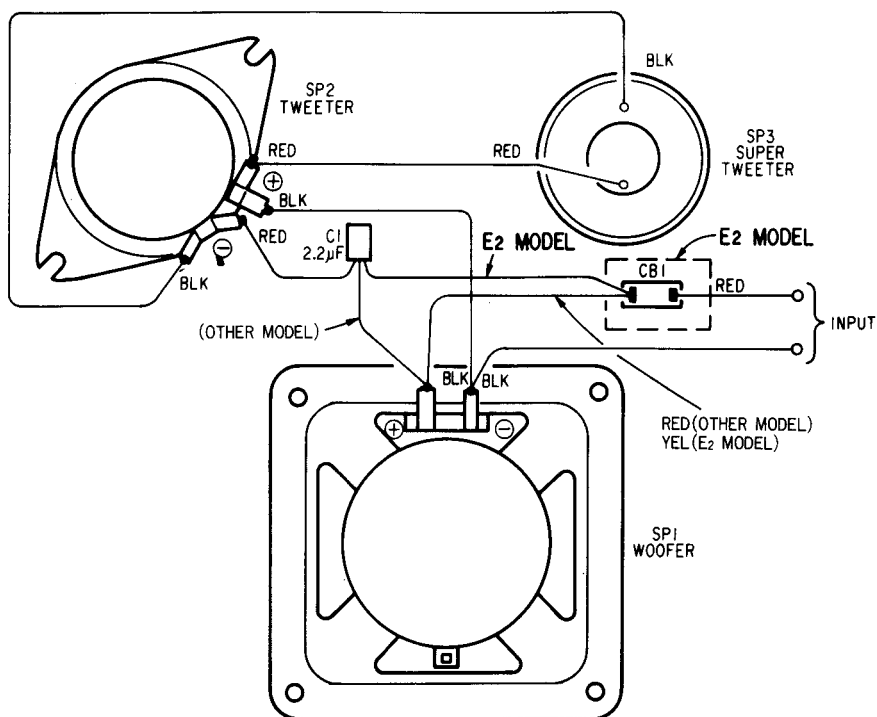
*US Model
Canadian Model
AEP Model
UK Model
E Model*

1. DISASSEMBLY FRONT PANEL REMOVAL

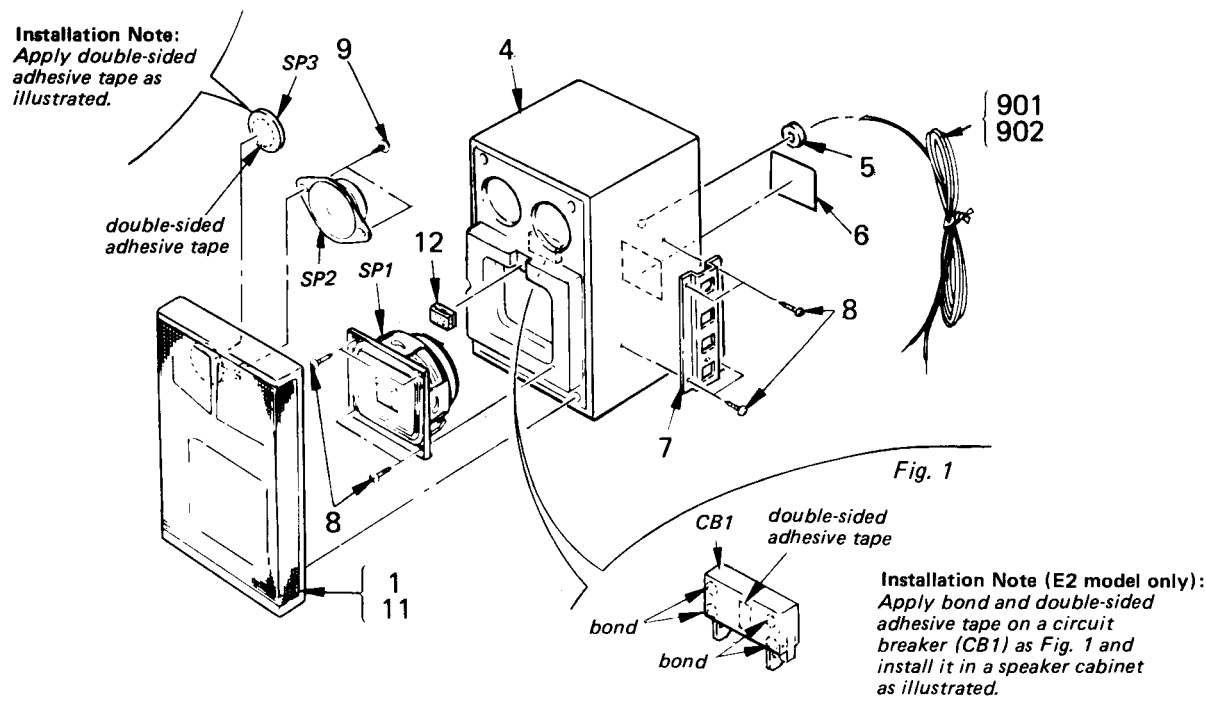


Note: Be careful not to scratch the cabinet.

2. WIRING DIAGRAM



3. EXPLODED VIEW AND PARTS LIST



				ELECTRICAL PARTS		
No.	Part No.	Description	Remarks	Ref.No.	Part No.	Description
1	X-4919-607-1	(US,Canadian,AEP,UK)		901	1-559-268-11	(Canadian,AEP,UK,E3,Saudi Arabia)
	PANEL(LEFT) ASSY, FRONT			1-559-269-11	(E2).....CORD, SPEAKER (A)
	X-4919-609-1	(E2,E3,Saudi Arabia)			1-559-443-11	(US).....CORD, SPEAKER (D)
4	X-4910-302-1	(US,Canadian,AEP,UK,E2,E3,Saudi Arabia)		902	1-559-270-11	(E2)...CORD, SPEAKER (C) (YEL)
	X-4910-307-1	(G-AEP).....CABINET ASSY, SPEAKER		C1	1-123-544-00	ELECT 2.2MF 20% 50V
5	4-870-003-00	CLIPPER, CORD		CB1	1-532-661-00	CIRCUIT BREAKER (1.6A)
6	4-919-679-01	(AEP,UK).....LABEL, MODEL NUMBER		SP1	1-503-807-11	(US,Canadian,AEP,UK)...SPEAKER
	4-919-680-01	(E2).....LABEL, MODEL NUMBER		SP1	1-503-808-11	(E2,E3,Saudi Arabia)...SPEAKER
	4-919-681-01	(E3,Saudi,Arabia)...LABEL, MODEL NUMBER		SP2	1-503-795-11	SPEAKER, CONE (5CM)
	4-920-850-01	(US,Canadian).....LABEL, MODEL NUMBER		SP3	1-529-053-11	BUZZER
7	4-920-144-01	PLATE (B), SIDE		ACCESSORY & PACKING MATERIAL		
8	4-874-614-11	SCREW (4) (3.5X14), TAPPING				
9	7-685-646-79	SCREW +BVTP 3X8 TYPE2 SLIT				
11	X-4919-608-1	(US,Canadian,AEP,UK)				
	PANEL (RIGHT) ASSY, FRONT				
	X-4919-610-1	(E2,E3,Saudi Arabia)				
	PANEL (RIGHT) ASSY, FRONT				
12	*4-920-140-01	PACKING				